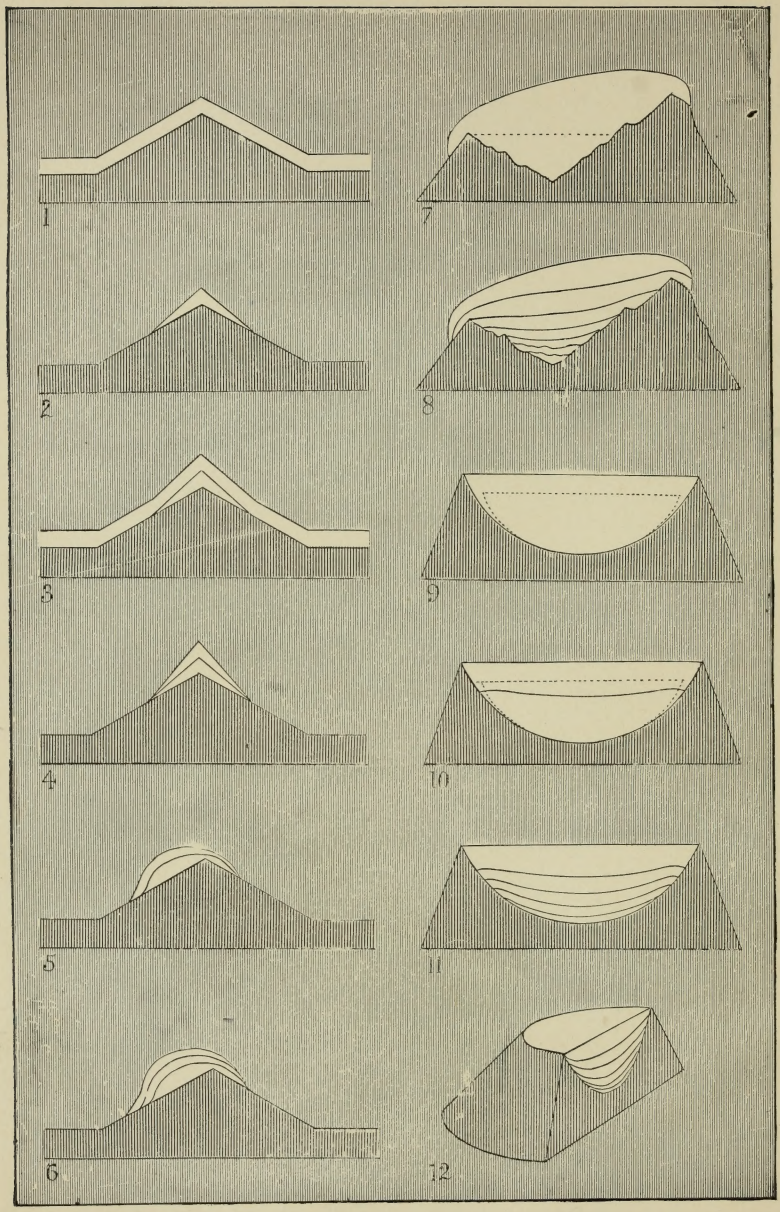


PLATE I.—FIRST CONDITIONS OF ACCUMULATION AND FUSION IN MOTIONLESS SNOW

DEUCALION

ALSO

THE KING OF THE GOLDEN RIVER

THE EAGLE'S NEST

ARROWS OF THE CHACE

BY

JOHN RUSKIN, M.A.

AUTHOR OF "THE SEVEN LAMPS OF ARCHITECTURE," "THE CROWN OF WILD OLIVE," "SESAME AND LILIES," ETC.



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DEUCALION

COLLECTED STUDIES ON THE LAPSE OF WAVES AND LIFE OF STONES

INTRODUCTION.

BRANTWOOD, 13*th July*, 1875.

I HAVE been glancing lately at many biographies, and have been much struck by the number of deaths which occur between the ages of fifty and sixty, (and, for the most part, in the earlier half of the decade,) in cases where the brain has been much used emotionally: or perhaps it would be more accurate to say, where the heart, and the faculties of perception connected with it, have stimulated the brain-action. Supposing such excitement to be temperate, equable, and joyful, I have no doubt the tendency of it would be to prolong, rather than depress, the vital energies. But the emotions of indignation, grief, controversial anxiety and vanity, or hopeless, and therefore uncontending, scorn, are all of them as deadly to the body as poisonous air or polluted water; and when I reflect how much of the active part of my past life has been spent in these states,—and that what may remain to me of life can never more be in any other,—I begin to ask myself, with somewhat pressing arithmetic, how much time is likely to be left me, at the age of fifty-six, to complete the various designs for which, until past fifty, I was merely collecting materials.

Of these materials, I have now enough by me for a most interesting (in my own opinion) history of fifteenth-century Florentine art, in six octavo volumes; an analysis of the Attic art of the fifth century B.C., in three volumes; an exhaustive history of northern thirteenth-century art, in ten volumes; a life of Turner, with analysis of modern landscape art, in four volumes; a life of Walter Scott, with analysis of modern epic art, in seven volumes; a life of Xenophon, with analysis of the general principles of Education, in ten volumes; a commen-

tary on Hesiod, with final analysis of the principles of Political Economy, in nine volumes; and a general description of the geology and botany of the Alps, in twenty-four volumes.

Of these works, though all carefully projected, and some already in progress,—yet, allowing for the duties of my Professorship, possibly continuing at Oxford, and for the increasing correspondence relating to Fors Clavigera,—it does not seem to me, even in my most sanguine moments, now probable that I shall live to effect such conclusion as would be satisfactory to me; and I think it will therefore be only prudent, however humiliating, to throw together at once, out of the heap of loose stones collected for this many-towered city which I am not able to finish, such fragments of good marble as may perchance be useful to future builders; and to clear away, out of sight, the lime and other rubbish which I meant for mortar.

And because it is needful, for my health's sake, henceforward to do as far as possible what I find pleasure, or at least tranquillity, in doing, I am minded to collect first what I have done in geology and botany; for indeed, had it not been for grave mischance in earlier life, (partly consisting in the unlucky gift, from an affectionate friend, of Rogers' poems, as related in Fors Clavigera for August of this year,) my natural disposition for these sciences would certainly long ago have made me a leading member of the British Association for the Advancement of Science; or—who knows?—even raised me to the position which it was always the summit of my earthly ambition to attain, that of President of the Geological Society. For, indeed, I began when I was only twelve years old, a 'Mineralogical Dictionary,' intended to supersede everything done by Werner and Mohs, (and written in a shorthand composed of crystallographic signs now entirely unintelligible to me,)—and year by year have endeavoured, until very lately, to keep abreast with the rising tide of geological knowledge; sometimes even, I believe, pushing my way into little creeks in advance of the general wave. I am not careful to assert for myself the petty advantage of priority in discovering what, some day or other, somebody must certainly have discovered. But

I think it due to my readers, that they may receive what real good there may be in these studies with franker confidence, to tell them that the first sun-portrait ever taken of the Matterhorn, (and as far as I know of any Swiss mountain whatever,) was taken by me in the year 1849; that the outlines, (drawn by measurement of angle,) given in 'Modern Painters' of the Cervin, and aiguilles of Chamouni, are at this day demonstrable by photography as the trustworthiest then in existence; that I was the first to point out, in my lecture given in the Royal Institution,* the real relation of the vertical cleavages to the stratification, in the limestone ranges belonging to the chalk formation in Savoy; and that my analysis of the structure of agates, ('Geological Magazine,') remains, even to the present day, the only one which has the slightest claim to accuracy of distinction, or completeness of arrangement. I propose therefore, if time be spared me, to collect, of these detached studies, or lectures, what seem to me deserving of preservation; together with the more carefully written chapters on geology and botany in the latter volumes of 'Modern Painters;' adding the memoranda I have still by me in manuscript, and such further illustrations as may occur to me on revision. Which fragmentary work, — trusting that among the flowers or stones let fall by other hands it may yet find service and life,—I have ventured to dedicate to Proserpina and Deucalion.

Why not rather to Eve, or at least to one of the wives of Lamech, and to Noah? asks, perhaps, the pious modern reader.

Because I think it well that the young student should first learn the myths of the betrayal and redemption, as the Spirit which moved on the face of the wide first waters, taught them to the heathen world. And because, in this power, Proserpine and Deucalion are at least as true as Eve or Noah; and all four together incomparably truer than the Darwinian Theory. And, in general, the reader may take it for a first principle, both in science and literature, that the feeblest myth is

* Reported in the 'Journal de Genève,' date ascertainable, but of no consequence.

better than the strongest theory: the one recording a natural impression on the imaginations of great men, and of unpretending multitudes; the other, an unnatural exertion of the wits of little men, and half-wits of impertinent multitudes.

It chanced, this morning, as I sat down to finish my preface, that I had, for my introductory reading, the fifth chapter of the second book of Esdras; in which, though often read carefully before, I had never enough noticed the curious verse, "Blood shall drop out of wood, and the stone shall give his voice, and the people shall be troubled." Of which verse, so far as I can gather the meaning from the context, and from the rest of the chapter, the intent is, that in the time spoken of by the prophet, which, if not our own, is one exactly corresponding to it, the deadness of men to all noble things shall be so great, that the sap of trees shall be more truly blood, in God's sight, than their hearts' blood; and the silence of men, in praise of all noble things, so great, that the stones shall cry out, in God's hearing, instead of their tongues; and the rattling of the shingle on the beach, and the roar of the rocks driven by the torrent, be truer Te Deum than the thunder of all their choirs. The writings of modern scientific prophets teach us to anticipate a day when even these lower voices shall be also silent; and leaf cease to wave, and stream to murmur, in the grasp of an eternal cold. But it may be, that rather out of the mouths of babes and sucklings a better peace may be promised to the redeemed Jerusalem; and the strewn branches, and low-laid stones, remain at rest at the gates of the city, built in unity with herself, and saying with her human voice, "My King cometh."

DEUCALION.

CHAPTER I.

THE ALPS AND JURA.

(*Part of a Lecture given in the Museum of Oxford, in October,* 1874.)

1. It is often now a question with me whether the persons who appointed me to this Professorship have been disappointed, or pleased, by the little pains I have hitherto taken to advance the study of landscape. That it is my own favourite branch of painting seemed to me a reason for caution in pressing it on your attention; and the range of art-practice which I have hitherto indicated for you, seems to me more properly connected with the higher branches of philosophical inquiry native to the University. But, as the second term of my Professorship will expire next year, and as I intend what remains of it to be chiefly employed in giving some account of the art of Florence and Umbria, it seemed to me proper, before entering on that higher subject, to set before you some of the facts respecting the great elements of landscape, which I first stated thirty years ago; arranging them now in such form as my farther study enables me to give them. I shall not, indeed, be able to do this in a course of spoken lectures; nor do I wish to do so. Much of what I desire that you should notice is already stated, as well as I can do it, in 'Modern Painters;' and it would be waste of time to recast it in the form of address. But I should not feel justified in merely

reading passages of my former writings to you from this chair; and will only ask your audience, here, of some additional matters, as, for instance, to-day, of some observations I have been making recently, in order to complete the account given in 'Modern Painters,' of the structure and aspect of the higher Alps.

2. Not that their structure—(let me repeat, once more, what I am well assured you will, in spite of my frequent assertion, find difficult to believe,)—not that their structure is any business of yours or mine, as students of practical art. All investigations of internal anatomy, whether in plants, rocks, or animals, are hurtful to the finest sensibilities and instincts of form. But very few of us have any such sensibilities to be injured; and that we may distinguish the excellent art which they have produced, we must, by duller processes, become cognizant of the facts. The Torso of the Vatican was not wrought by help from dissection; yet all its supreme qualities could only be explained by an anatomical master. And these drawings of the Alps by Turner are in landscape, what the Elgin marbles or the Torso are in sculpture. There is nothing else approaching them, or of their order. Turner made them before geology existed; but it is only by help of geology that I can prove their power.

3. I chanced, the other day, to take up a number of the 'Alpine Journal' (May, 1871,) in which there was a review by Mr. Leslie Stephen, of Mr. Whymper's 'Scrambles among the Alps,' in which it is said that "if the Alpine Club has done nothing else, it has taught us for the first time really to see the mountains." I have not the least idea whom Mr. Stephen means by 'us;' but I can assure him that mountains had been seen by several people before the nineteenth century; that both Hesiod and Pindar occasionally had eyes for Parnassus, Virgil for the Apennines, and Scott for the Grampians; and without speaking of Turner, or of any other accomplished artist, here is a little bit of old-fashioned Swiss drawing of the two Mythens, above the central town of Switzerland,* showing a degree of affection, intelligence, and tender observation, com-

* In the Educational Series of my Oxford Schools.

pared to which our modern enthusiasm is, at best, childish; and commonly also as shallow as it is vulgar.

4. Believe me, gentlemen, your power of seeing mountains cannot be developed either by your vanity, your curiosity, or your love of muscular exercise. It depends on the cultivation of the instrument of sight itself, and of the soul that uses it. As soon as you can see mountains rightly, you will see hills also, and valleys, with considerable interest; and a great many other things in Switzerland with which you are at present but poorly acquainted. The bluntness of your present capacity of ocular sensation is too surely proved by your being unable to enjoy any of the sweet lowland country, which is incomparably more beautiful than the summits of the central range, and which is meant to detain you, also, by displaying—if you have patience to observe them—the loveliest aspects of that central range itself, in its real majesty of proportion, and mystery of power.

5. For, gentlemen, little as you may think it, you can no more see the Alps from the Col du Géant, or the top of the Matterhorn, than the pastoral scenery of Switzerland from the railroad carriage. If you want to see the skeletons of the Alps, you may go to Zermatt or Chamouni; but if you want to see the body and soul of the Alps, you must stay awhile among the Jura, and in the Bernese plain. And, in general, the way to see mountains, is to take a knapsack and a walking-stick; leave alpenstocks to be flourished in each other's faces, and between one another's legs, by Cook's tourists; and try to find some companionship in yourself with yourself; and not to be dependent for your good cheer either on the gossip of the table-d'hôte, or the hail-fellow and well met, hearty though it be, of even the pleasantest of celebrated guides.

6. Whether, however, you think it necessary or not, for true sight of the Alps, to stay awhile among the Jura or in the Bernese fields, very certainly, for understanding, or questioning, of the Alps, it is wholly necessary to do so. If you look back to the lecture, which I gave as the fourth of my inaugural series, on the Relation of Art to Use, you will see it stated, as a grave matter of reproach to the modern traveller,

that, crossing the great plain of Switzerland nearly every summer, he never thinks of inquiring why it is a plain, and why the mountains to the south of it are mountains.

7. For solution of which, as it appears to me, not unnatural inquiry, all of you, who have taken any interest in geology whatever, must recognize the importance of studying the calcareous ranges which form the outlying steps of the Alps on the north; and which, in the lecture just referred to, I requested you to examine for their crag scenery, markedly developed in the Stockhorn, Pilate, and Sentis of Appenzell. The arrangements of strata in that great calcareous belt give the main clue to the mode of elevation of the central chain, the relations of the rocks over the entire breadth of North Switzerland being, roughly, as in this first section:

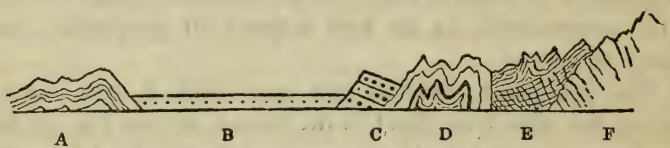


FIG. 1.

A. Jura limestones, moderately undulating in the successive chains of Jura.
B. Sandstones of the great Swiss plain.
C. Pebble breccias of the first ranges of Alpine hills.
D. Chalk formations violently contorted, forming the rock scenery of which I have just spoken.
E. Metamorphic rocks lifted by the central Alps.
F. Central gneissic or granitic mass, narrow in Mont Blanc, but of enormous extent southward from St. Gothard.

8. Now you may, for first grasp of our subject, imagine these several formations all fluted longitudinally, like a Gothic moulding, thus forming a series of ridges and valleys parallel to the Alps;—such as the valley of Chamouni, the Simmenthal, and the great vale containing the lakes of Thun and Brienz; to which longitudinal valleys we now obtain access through gorges or defiles, for the most part cut across the

formations, and giving geological sections all the way from the centres of the Alps to the plain.

9. Get this first notion very simply and massively set in your thoughts. Longitudinal valleys, parallel with the beds; more or less extended and soft in contour, and often occupied by lakes. Cross defiles like that of Lauterbrunnen, the Via Mala, and the defile of Gondo; cut down across the beds, and traversed by torrents, but rarely occupied by lakes. The bay of Uri is the only perfect instance in Switzerland of a portion of lake in a diametrically cross valley; the crossing arms of the lake Lucerne mark the exactly rectangular schism of the forces; the main direction being that of the lakes of Kussnacht and Alpnacht, carried on through those of Sarnen and Lungern, and across the low intervening ridge of the Brunig, joining the depressions of Brienz and Thun; of which last lake the lower reach, however, is obliquely transverse. Forty miles of the Lago Maggiore, or, including the portion of lake now filled by delta, fifty, from Baveno to Bellinzona, are in the longitudinal valley which continues to the St. Bernardino: and the entire length of the lake of Como is the continuation of the great lateral Valtelline.

10. Now such structure of parallel valley and cross defile would be intelligible enough, if it were confined to the lateral stratified ranges. But, as you are well aware, the two most notable longitudinal valleys in the Alps are cut right along the heart of their central gneissic chain; how much by dividing forces in the rocks themselves, and how much by the sources of the two great rivers of France and Germany, there will yet be debate among geologists for many a day to come. For us, let the facts at least be clear; the questions definite; but all debate declined.

11. All lakes among the Alps, except the little green pool of Lungern, and a few small tarns on the cols, are quite at the bottom of the hills. We are so accustomed to this condition, that we never think of it as singular. But in its unexceptional character, it is extremely singular. How comes it to pass, think you, that through all that wilderness of mountain—raised, in the main mass of it, some six thousand

feet above the sea, so that there is no col lower,—there is not a single hollow shut in so as to stay the streams of it;—that no valley is ever barred across by a ridge which can keep so much as ten feet of water calm above it,—that every such ridge that once existed has been cut through, so as to let the stream escape?

I put this question in passing; we will return to it: let me first ask you to examine the broad relations of the beds that are cut through. My typical section, Fig. 1, is stringently simple; it must be much enriched and modified to fit any locality; but in the main conditions it is applicable to the entire north side of the Alps, from Annecy to St. Gall.

12. You have first—(I read from left to right, or north to south, being obliged to do so because all Studer's sections are thus taken)—this mass of yellow limestone, called of the Jura, from its development in that chain; but forming an immense tract of the surface of France also; and, as you well know, this our city of Oxford stands on one of its softer beds, and is chiefly built of it. We may, I think, without entering any forbidden region of theory, assume that this Jura limestone extends under the plain of Switzerland, to reappear where we again find it on the flanks of the great range; where on the top of it the beds drawn with fine lines in my section correspond generally to the date of our English chalk, though they are far from white in the Alps. Curiously adjusted to the chalk beds, rather than superimposed, we have these notable masses of pebble breccia, which bound the sandstones of the great Swiss plain.

13. I have drawn that portion of the section a little more boldly in projection, to remind you of the great Rigi promontory; and of the main direction of the slope of these beds, with their backs to the Alps, and their escarpments to the plain. Both these points are of curious importance. Have you ever considered the reason of the fall of the Rossberg, the most impressive physical catastrophe that has chanced in Europe in modern times? Few mountains in Switzerland looked safer. It was of inconsiderable height, of very moderate steepness; but its beds lay perfectly

straight, and that over so large a space, that when the clay between two of them got softened by rain, one slipped off the other. Now this mathematical straightness is characteristic of these pebble beds,—not universal in them, but characterestic of them, and of them only. The limestones underneath are usually, as you see in this section, violently contorted; if not contorted, they are at least so irregular in the bedding that you can't in general find a surface of a furlong square which will not either by its depression, or projection, catch and notch into the one above it, so as to prevent its sliding. Also the limestones are continually torn, or split, across the beds. But the breccias, though in many places they suffer decomposition, are curiously free from fissures and rents. The hillside remains unshattered



FIG. 2.

unless it comes down in a mass. But their straight bedding, as compared with the twisted limestone, is the notablest point in them; and see how very many difficulties are gathered in the difference. The crushed masses of limestone are supposed to have been wrinkled together by the lateral thrust of the emerging protogines; and these pebble beds to have been raised into a gable, or broken into a series of colossal fragments set over each other like tiles, all along the south shore of the Swiss plain, by the same lateral thrust; nay, "though we may leave in doubt," says Studer, "by what cause the folded forms of the Jura may have been pushed back, there yet remains to us, for the explanation of this gabled form of the Nagelfluh, hardly any other choice than to adopt the opinion of a lateral pressure communicated by the Alps to the tertiary bottom. We have often found in the outer limestone chains themselves clear evidence of a pressure

going out from the inner Alps; and the pushing of the older over the younger formations along the flank of the limestone hills, leaves hardly any other opinion possible."

14. But if these pebble beds have been heaved up by the same lateral thrust, how is that a force which can bend limestone like leather, cannot crush anywhere, these pebble beds into the least confusion? Consider the scale on which operations are carried on, and the forces of which this sentence of Studer's so serenely assumes the action. Here, A, Fig. 2, is his section of the High Sentis of Appenzell, of which the height is at least, in the parts thus bent, 6,000 feet. And here, B, Fig. 2, are some sheets of paper, crushed together by my friend Mr. Henry Woodward, from a length of four inches, into what you see; the High Sentis, exactly resembles these, and seems to consist of four miles of limestone similarly crushed into one. Seems, I say, remember: I never theorize, I give you the facts only. The beds *do* go up and down like this: that they have been crushed together, it is Mr. Studer who says or supposes; I can't go so far; nevertheless, I admit that he appears to be right, and I believe he is right; only don't be positive about it, and don't debate; but think of it, and examine.

15. Suppose, then, you have a bed of rocks, four miles long by a mile thick, to be crushed laterally into the space of a mile. It may be done, supposing the mass not to be reducible in bulk, in two ways: you may either crush it up into folds, as I crush these pieces of cloth; or you may break it into bits, and shuffle them over one another like cards. Now, Mr. Studer, and our geologists in general, believe the first of these operations to have taken place with the limestones, and the second with the breccias. They are, as I say, very probably right: only just consider what is involved in the notion of shuffling up your breccias like a pack of cards, and folding up your limestones like a length of silk which a dexterous draper's shopman is persuading a young lady to put ten times as much of into her gown as is wanted for it! Think, I say, what is involved in the notion. That you may shuffle your pebble beds, you must have them strong and well knit. Then

what sort of force must you have to break and to heave them? Do but try the force required to break so much as a Captain's biscuit by a slow push,—it is the illustration I gave long ago in 'Modern Painters,'—and then fancy the results of such fracturing power on a bed of conglomerate two thousand feet thick! And here is indeed a very charming bookbinder's pattern, produced by my friend in crushed paper, and the length of silk produces lovely results in these arrangements à la Paul Veronese. But when you have the cliffs of the Diablerets, or the Dent du Midi of Bex, to deal with; and have to fold *them* up similarly, do you mean to fold your two-thousand-feet-thick Jura limestone in a brittle state, or a ductile one? If brittle, won't it smash? If ductile, won't it squeeze? Yet your whole mountain theory proceeds on the assumption that it has neither broken nor been compressed,—more than the folds of silk or coils of paper.

16. You most of you have been upon the lake of Thun. You have been at least carried up and down it in a steamer; you smoked over it meanwhile, and countenanced the Frenchmen and Germans who were spitting into it. The steamer carried you all the length of it in half an hour; you looked at the Jungfrau and Blumlis Alp, probably, for five minutes, if it was a fine day; then took to your papers, and read the last news of the Tichborne case; then you lounged about,—thought it a nuisance that the steamer couldn't take you up in twenty minutes, instead of half an hour; then you got into a row about your luggage at Neuhaus; and all that you recollect afterwards is that lunch where you met the so-and-sos at Interlaken.

17. Well, we used to do it differently in old times. Look here;—this* is the quay at Neuhaus, with its then travelling arrangements. A flat-bottomed boat, little better than a punt;—a fat Swiss girl with her schatz, or her father, to row it; oars made of a board tied to a pole: and so one paddled along over the clear water, in and out among the bays and villages, for half a day of pleasant life. And one knew some-

* Turner's first study of the Lake of Thun, 1803.

thing about the lake, ever after, if one had a head with eyes in it.

It is just possible, however, that some of you also who have been learning to see the Alps in your new fashion, may remember that the north side of the lake of Thun consists, first, next Thun, of a series of low green hills, with brown cliffs here and there among the pines; and that above them, just after passing Oberhofen, rears up suddenly a great precipice, with its flank to the lake, and the winding wall of it prolonged upwards, far to the north, losing itself, if the day is fine, in faint tawny crests of rock among the distant blue; and if stormy, in wreaths of more than commonly torn and fantastic cloud.

18. To form the top of that peak on the north side of the lake of Thun, you have to imagine forces which have taken—say, the whole of the North Foreland, with Dover castle on it, and have folded it upside-down on the top of the parade at Margate,—then swept up Whitstable oyster-beds, and put them on the bottom of Dover cliffs turned topsy-turvy,—and then wrung the whole round like a wet towel, till it is as close and hard as it will knit;—such is the beginning of the operations which have produced the lateral masses of the higher Alps.

19. Next to these, you have the great sculptural force, which gave them, approximately, their present forms,—which let out all the lake waters above a certain level,—which cut the gorge of the Devil's Bridge—of the Via Mala—of Gondo—of the valley of Cluse;—which let out the Rhone at St. Maurice, the Ticino at Faido, and shaped all the vast ravines which make the flanks of the great mountains awful.

20. Then, finally, you have the rain, torrent, and glacier of human days.

Of whose action, briefly, this is the sum.

Over all the high surfaces, disintegration—melting away—diffusion—loss of height and terror.

In the ravines,—whether occupied by torrent or glacier,—gradual incumbrance by materials falling from above; choking up of their beds by silt—by moraine—by continual ad

vances of washed slopes on their flanks: here and there, only, exceptional conditions occur in which a river is still continuing feebly the ancient cleaving action, and cutting its ravine deeper, or cutting it back.

Fix this idea thoroughly in your minds. Since the valley of Lauterbrunnen existed for human eyes,—or its pastures for the food of flocks,—it has not been cut deeper, but partially filled up by its torrents. The town of Interlachen stands where there was once lake,—and the long slopes of grassy sward on the north of it, stand where once was precipice. Slowly,—almost with infinite slowness,—the declining and encumbering action takes place; but incessantly, and,—as far as our experience reaches,—irredeemably.

21. Now I have touched in this lecture briefly on the theories respecting the elevation of the Alps, because I want to show you how uncertain and unsatisfactory they still remain. For our own work, we must waste no time on them; we must begin where all theory ceases; and where observation becomes possible,—that is to say, with the forms which the Alps have actually retained while men have dwelt among them, and on which we can trace the progress, or the power, of existing conditions of minor change. Such change has lately affected, and with grievous deterioration, the outline of the highest mountain of Europe, with that of its beautiful supporting buttresses,—the aiguille de Bionassay. I do not care, and I want you not to care,—how crest or aiguille was lifted, or where its materials came from, or how much bigger it was once. I do care that you should know, and I will endeavour in these following pages securely to show you, in what strength and beauty of form it has actually stood since man was man, and what subtle modifications of aspect, or majesties of contour, it still suffers from the rains that beat upon it, or owes to the snows that rest.

CHAPTER II.

THE THREE ÆRAS.

(*Part of a Lecture given at the London Institution in March 1875, with added pieces from Lectures in Oxford.*)

1. We are now, so many of us, some restlessly and some wisely, in the habit of spending our evenings abroad, that I do not know if any book exists to occupy the place of one classical in my early days, called 'Evenings at Home.' It contained, among many well-written lessons, one, under the title of 'Eyes and No Eyes,' which some of my older hearers may remember, and which I should myself be sorry to forget. For if such a book were to be written in these days, I suppose the title and the moral of the story would both be changed; and, instead of 'Eyes and No Eyes,' the tale would be called 'Microscopes and No Microscopes.' For I observe that the prevailing habit of learned men is now to take interest only in objects which cannot be seen without the aid of instruments; and I believe many of my learned friends, if they were permitted to make themselves, to their own liking, instead of suffering the slow process of selective development, would give themselves heads like wasps', with three microscopic eyes in the middle of their foreheads, and two ears at the ends of their antennae.

2. It is the fashion, in modern days, to say that Pope was no poet. Probably our schoolboys also, think Horace none. They have each, nevertheless, built for themselves a monument of enduring wisdom; and all the temptations and errors of our own day, in the narrow sphere of lenticular curiosity, were anticipated by Pope, and rebuked, in one couplet:

> "Why has not man a microscopic eye?
> For this plain reason,—Man is not a fly."

While the nobler following lines,

> "Say, what avail, were finer optics given
> To inspect a mite, not comprehend the heaven?"

only fall short of the truth of our present dulness, in that we inspect heaven itself, without understanding it.

3. In old times, then, it was not thought necessary for human creatures to know either the infinitely little, or the infinitely distant; nor either to see, or feel, by artificial help. Old English people used to say they perceived things with their five—or it may be, in a hurry, they would say, their seven, *senses;* and that word 'sense' became, and for ever must remain, classical English, derived from classical Latin, in both languages signifying, not only the bodily sense, but the moral one. If a man heard, saw, and tasted rightly, we used to say he had his bodily senses perfect. If he judged, wished, and felt rightly, we used to say he had his moral senses perfect, or was a man 'in his senses.' And we were then able to speak precise truth respecting both matter and morality; and if we heard any one saying clearly absurd things,—as, for instance, that human creatures were automata, —we used to say they were out of their 'senses,' and were talking non-'sense.'

Whereas, in modern days, by substituting analysis for sense in morals, and chemistry for sense in matter, we have literally blinded ourselves to the essential qualities of both matter and morals; and are entirely incapable of understanding what is meant by the description given us, in a book we once honoured, of men who "by reason of use, have their *senses* exercised to discern both good and evil."

4. And still, with increasingly evil results to all of us, the separation is every day widening between the man of science and the artist—in that, whether painter, sculptor, or musician, the latter is pre-eminently a person who sees with his Eyes, hears with his Ears, and labours with his Body, as God constructed them; and who, in using instruments, limits himself to those which convey or communicate his human power, while he rejects all that increase it. Titian would refuse to quicken his touch by electricity; and Michael Angelo to substitute a steam hammer for his mallet. Such men not only do not desire, they imperatively and scornfully refuse, either the force, or the information, which are beyond the scope of the

flesh and the senses of humanity. And it is at once the wisdom, the honour, and the peace, of the Masters both of painting and literature, that they rejoice in the strength, and rest in the knowledge, which are granted to active and disciplined life ; and are more and more sure, every day, of the wisdom of the Maker in setting such measure to their being ; and more and more satisfied, in their sight and their audit of Nature, that "the hearing ear, and the seeing eye,—the Lord hath made even both of them."

5. This evening, therefore, I venture to address you speaking limitedly as an artist ; but, therefore, I think, with a definite advantage in having been trained to the use of my eyes and senses, as my chief means of observation : and I shall try to show you things which with your own eyes you may any day see, and with your own common sense, if it please you to trust it, account for.

Things which you may see, I repeat ; not which you might perhaps have seen, if you had been born when you were not born ; nor which you might perhaps in future see, if you were alive when you will be dead. But what, in the span of earth, and space of time, allotted to you, may be seen with your human eyes, if you learn to use them.

And this limitation has, with respect to our present subject, a particular significance, which I must explain to you before entering on the main matter of it.

6. No one more honours the past labour—no one more regrets the present rest—of the late Sir Charles Lyell, than his scholar, who speaks to you. But his great theorem of the constancy and power of existing phenomena was only in measure proved,—in a larger measure disputable ; and in the broadest bearings of it, entirely false. Pardon me if I spend no time in qualifications, references, or apologies, but state clearly to you what Sir Charles Lyell's work itself enables us now to perceive of the truth. There are, broadly, three great demonstrable periods of the Earth's history. That in which it was crystallized ; that in which it was sculptured ; and that in which it is now being unsculptured, or deformed. These three periods interlace with each other, and gradate into each other

—as the periods of human life do. Something dies in the child on the day that it is born,—something is born in the man on the day that he dies: nevertheless, his life is broadly divided into youth, strength, and decrepitude. In such clear sense, the Earth has its three ages: of their length we know as yet nothing, except that it has been greater than any man had imagined.

7. (THE FIRST PERIOD.)—But there was a period, or a succession of periods, during which the rocks which are now hard were soft; and in which, out of entirely different positions, and under entirely different conditions from any now existing or describable, the masses, of which the mountains you now see are made, were lifted, and hardened, in the positions they now occupy, though in what forms we can now no more guess than we can the original outline of the block from the existing statue.

8. (THE SECOND PERIOD.)—Then, out of those raised masses, more or less in lines compliant with their crystalline structure, the mountains we now see were hewn, or worn, during the second period, by forces for the most part differing both in mode and violence from any now in operation, but the result of which was to bring the surface of the earth into a form approximately that which it has possessed as far as the records of human history extend.—The Ararat of Moses's time, the Olympus and Ida of Homer's, are practically the same mountains now, that they were then.

9. (THE THIRD PERIOD.)—Not, however, without some calculable, though superficial, change, and that change, one of steady degradation. For in the third, or historical period, the valleys excavated in the second period are being filled up, and the mountains, hewn in the second period, worn or ruined down. In the second æra the valley of the Rhone was being cut deeper every day; now it is every day being filled up with gravel. In the second æra, the scars of Derbyshire and Yorkshire were cut white and steep; now they are being darkened by vegetation, and crumbled by frost. You cannot, I repeat, separate the periods with precision; but, in their characters, they are as distinct as youth from age.

10. The features of mountain form, to which during my own life I have exclusively directed my study, and which I endeavour to bring before the notice of my pupils in Oxford, are exclusively those produced by existing forces, on mountains whose form and substance have not been materially changed during the historical period.

For familiar example, take the rocks of Edinburgh castle, and Salisbury Craig. Of course we know that they are both basaltic, and must once have been hot. But I do not myself care in the least what happened to them till they were cold.* They have both been cold at least longer than young Harry Percy's spur; and, since they were last brought out of the oven, in the shape which, approximately, they still retain, with a hollow beneath one of them, which, for aught I know, or care, may have been cut by a glacier out of white-hot lava, but

* More curious persons, who *are* interested in their earlier condition, will find a valuable paper by Mr. J. W. Judd, in the quarterly 'Journal of the Geological Society,' May, 1875; very successfully, it seems to me, demolishing all former theories on the subject, which the author thus sums, at p. 135.

"The series of events which we are thus required to believe took place in this district is therefore as follows:—

A. At the point where the Arthur's Seat group of hills now rises, a series of volcanic eruptions occurred during the Lower Calciferous Sandstone period, commencing with the emission of basaltic lavas, and ending with that of porphyrites.

B. An interval of such enormous duration supervened as to admit of—

a. The deposition of at least 3,000 feet of Carboniferous strata.

b. The bending of all the rocks of the district into a series of great anticlinal and synclinal folds.

c. The removal of every vestige of the 3,000 feet of strata by denudation.

C. The outburst, after this vast interval, of a second series of volcanic eruptions upon the *identical site* of the former ones, presenting in its succession of events *precisely the same sequence*, and resulting in the production of rocks of *totally undistinguishable character*.

Are we not entitled to regard the demand for the admission of such a series of extraordinary accidents as evidence of the *antecedent improbability* of the theory? And when we find that all attempts to suggest a period for the supposed second series of outbursts have successively failed, do not the difficulties of the hypothesis appear to be overwhelming?"

assuredly at last got itself filled with pure, sweet, cold water, and called, in Lowland Scotch, the 'Nor' Loch;'—since the time, I say, when the basalt, above, became hard, and the lake beneath, drinkable, I am desirous to examine with you what effect the winter's frost and summer's rain have had on the crags and their hollows; how far the 'Kittle nine steps' under the castle-walls, or the firm slope and cresting precipice above the dark ghost of Holyrood, are enduring or departing forms; and how long, unless the young engineers of New Edinburgh blast the incumbrance away, the departing mists of dawn may each day reveal the form, unchanged, of the Rock which was the strength of their Fathers.

11. Unchanged, or so softly modified that eye can scarcely trace, or memory measure, the work of time. Have you ever practically endeavoured to estimate the alterations of form in any hard rocks known to you, during the course of your own lives? You have all heard, a thousand times over, the common statements of the school of Sir Charles Lyell. You know all about alluviums and gravels; and what torrents do, and what rivers do, and what ocean currents do; and when you see a muddy stream coming down in a flood, or even the yellow gutter more than usually rampant by the roadside in a thunder shower, you think, of course, that all the forms of the Alps are to be accounted for by aqueous erosion, and that it's a wonder any Alps are still left. Well—any of you who have fished the pools of Scottish or a Welsh stream,—have you ever thought of asking an old keeper how much deeper they had got to be, while his hairs were silvering? Do you suppose he wouldn't laugh in your face?

There are some sitting here, I think, who must have themselves fished, for more than one summer, years ago, in Dove or Derwent,—in Tweed or Teviot. Can any of you tell me a single pool, even in the limestone or sandstone, where you could spear a salmon then, and can't reach one now—(providing always the wretches of manufacturers have left you one to be speared, or water that you can see through)? Do you know so much as a single rivulet of clear water which has cut away a visible half-inch of Highland rock, to your own knowledge,

in your own day? You have seen whole banks, whole fields washed away; and the rocks exposed beneath? Yes, of course you have; and so have I. The rains wash the loose earth about everywhere, in any masses that they chance to catch—loose earth, or loose rock. But yonder little rifted well in the native whinstone by the sheepfold,—did the gray shepherd not put his lips to the same ledge of it, to drink—when he and you were boys together?

12. 'But Niagara, and the Delta of the Ganges—and—all the rest of it?' Well, of course a monstrous mass of continental drainage, like Niagara, *will* wash down a piece of crag once in fifty years, (but only that, if it's rotten below;) and tropical rains will eat the end off a bank of slime and alligators,—and spread it out lower down. But does any Scotchman know a change in the Fall of Fyers?—any Yorkshireman in the Force of Tees?

Except of choking up, it may be—not of cutting down. It is true, at the side of every stream you see the places in the rocks hollowed by the eddies. I suppose the eddies go on at their own rate. But I simply ask, Has any human being ever known a stream, in hard rock, cut its bed an inch deeper down at a given spot?

13. I can look back, myself, now pretty nearly, I am sorry to say, half a century, and recognize no change whatever in any of my old dabbling-places; but that some stones are mossier, and the streams usually dirtier,—the Derwent above Keswick, for example.

'But denudation does go on, somehow: one sees the whole glen is shaped by it?' Yes, but not by the *stream*. The stream only sweeps down the loose stones; frost and chemical change are the powers that loosen them. I have indeed not known one of my dabbling-places changed in fifty years. But I have known the éboulement under the Rochers des Fyz, which filled the Lac de Chêde; I passed through the valley of Cluse a night after some two or three thousand tons of limestone came off the cliffs of Maglans—burying the road and field beside it. I have seen half a village buried by a landslip, and its people killed, under Monte St. Angelo, above Amalfi. I

have seen the lower lake of Llanberis destroyed, merely by artificial slate quarries; and the Waterhead of Coniston seriously diminished in purity and healthy flow of current by the débris of its copper mines. These are all cases, you will observe, of degradation; diminishing majesty in the mountain, and diminishing depth in the valley, or pools of its waters. I cannot name a single spot in which, during my lifetime spent among the mountains, I have seen a peak made grander, a watercourse cut deeper, or a mountain pool made larger and purer.

14. I am almost surprised, myself, as I write these words, at the strength which, on reflection, I am able to give to my assertion. For, even till I began to write these very pages, and was forced to collect my thoughts, I remained under the easily adopted impression, that, at least among soft earthy eminences, the rivers were still cutting out their beds. And it is not so at all. There are indeed banks here and there which they visibly remove; but whatever they sweep down from one side, they sweep up on the other, and extend a promontory of land for every shelf they undermine: and as for those radiating fibrous valleys in the Apennines, and such other hills, which look symmetrically shaped by streams,—they are not lines of trench from below, but lines of wash or slip from above: they are the natural wear and tear of the surface, directed indeed in easiest descent by the bias of the stream, but not dragged down by its grasp. In every one of those ravines the water is being choked up to a higher level; it is not gnawing down to a lower. So that, I repeat, earnestly, their chasms being choked below, and their precipices shattered above, all mountain forms are suffering a deliquescent and corroding change,—not a sculpturesque or anatomizing change. All character is being gradually effaced; all crooked places made straight,—all rough places, plain; and among these various agencies, not of *e*rosion, but *cor*rosion, none are so distinct as that of the glacier, in filling up, not cutting deeper, the channel it fills; and in rounding and smoothing, but never sculpturing, the rocks over which it passes.

In this fragmentary collection of former work, now patched and darned into serviceableness, I cannot finish my chapters with the ornamental fringes I used to twine for them; nor even say, by any means, all I have in my mind on the matters they treat of: in the present case, however, the reader will find an elucidatory postscript added at the close of the fourth chapter, which he had perhaps better glance over before beginning the third.

CHAPTER III.

OF ICE-CREAM.

(Continuation of Lecture delivered at London Institution, with added Illustrations from Lectures at Oxford.)

1. The statement at the close of the last chapter, doubtless surprising and incredible to many of my readers, must, before I reinforce it, be explained as referring only to glaciers visible, at this day, in temperate regions. For of formerly deep and continuous tropical ice, or of existing Arctic ice, and their movements, or powers, I know, and therefore say, nothing.* But of the visible glaciers couched upon the visi-

* The following passage, quoted in the 'Geological Magazine' for June of this year, by Mr. Clifton Ward, of Keswick, from a letter of Professor Sedgwick's, dated May 24th, 1842, is of extreme value; and Mr. Ward's following comments are most reasonable and just:—

"No one will, I trust, be so bold as to affirm that an uninterrupted glacier could ever have extended from Shap Fells to the coast of Holderness, and borne along the blocks of granite through the whole distance, without any help from the floating power of water. The supposition involves difficulties tenfold greater than are implied in the phenomenon it pretends to account for. The glaciers descending through the valleys of the higher Alps have an enormous transporting power: but there is no such power in a great sheet of ice expanded over a country without mountains, and at a nearly dead level.

The difficulties involved in the theories of Messrs. Croll, Belt, Goodchild, and others of the same extreme school, certainly press upon me —and I think I may say also upon others of my colleagues—increasingly, as the country becomes more and more familiar in its features.

ble Alps, two great facts are very clearly ascertainable, which, in my lecture at the London Institution, I asserted in their simplicity, as follows :—

2. The first great fact to be recognized concerning them is that they are *Fluid* bodies. Sluggishly fluid, indeed, but definitely and completely so; and therefore, they do not scramble down, nor tumble down, nor crawl down, nor slip down; but *flow* down. They do not move like leeches, nor like caterpillars, nor like stones, but like, what they are made of, water.

That is the main fact in their state, and progress, on which all their great phenomena depend.

Fact first discovered and proved by Professor James Forbes, of Edinburgh, in the year 1842, to the astonishment of all the glacier theorists of his time;—fact strenuously denied, disguised, or confusedly and partially apprehended, by all of the glacier theorists of subsequent times, down to our own day; else there had been no need for me to tell it you again to-night.

3. The second fact of which I have to assure you is partly, I believe, new to geologists, and therefore may be of some farther interest to you because of its novelty, though I do not myself care a grain of moraine-dust for the newness of things; but rather for their oldness; and wonder more willingly at

It is indeed a most startling thought, as one stands upon the eastern borders of the Lake-mountains, to fancy the ice from the Scotch hills stalking boldly across the Solway, marching steadily up the Eden Valley, and persuading some of the ice from Shap to join it on an excursion over Stainmoor, and bring its boulders with it.

The outlying northern parts of the Lake-district, and the flat country beyond, have indeed been ravished in many a raid by our Scotch neighbours, but it is a question whether, in glacial times, the Cumbrian mountains and Pennine chain had not strength in their protruding icy arms to keep at a distance the ice proceeding from the district of the southern uplands, the mountains of which are not *superior* in elevation. Let us hope that the careful geological observations which will doubtless be made in the forthcoming *scientific* Arctic Expedition will throw much new light on our past glacial period.

J. Clifton Ward

Keswick, *April 26th*, 1875.

what my father and grandfather thought wonderful, (as, for instance, that the sun should rise, or a seed grow,) than at any newly-discovered marvel. Nor do I know, any more than I care, whether this that I have to tell you be new or not; but I did not absolutely *know* it myself, until lately; for though I had ventured with some boldness to assert it as a consequence of other facts, I had never been under the bottom of a glacier to look. But, last summer, I was able to cross the dry bed of a glacier, which I had seen flowing, two hundred feet deep, over the same spot, forty years ago. And there I saw, what before I had suspected, that modern glaciers, like modern rivers, were not cutting their beds deeper, but filling them up. These, then, are the two facts I wish to lay distinctly before you this evening,—first that glaciers are fluent; and, secondly, that they are filling up their beds, not cutting them deeper.

4. (I.) Glaciers are fluent; slowly, like lava, but distinctly. And now I must ask you not to disturb yourselves, as I speak, with bye-thoughts about 'the theory of regelation.' It is very interesting to know that if you put two pieces of ice together, they will stick together; let good Professor Faraday have all the credit of showing us that; and the human race in general, the discredit of not having known so much as that, about the substance they have skated upon, dropped through, and eat any quantity of tons of—these two or three thousand years.

It was left, nevertheless, for Mr. Faraday to show them that two pieces of ice will stick together when they touch—as two pieces of hot glass will. But the capacity of ice for sticking together no more accounts for the making of a glacier, than the capacity of glass for sticking together accounts for the making of a bottle. The mysteries of crystalline vitrification, indeed, present endless entertainment to the scientific inquirer; but by no theory of vitrification can he explain to us how the bottle was made narrow at the neck, or dishonestly vacant at the bottom. Those conditions of it are to be explained only by the study of the centrifugal and moral powers to which it has been submitted.

5. In like manner, I do not doubt but that wonderful phenomena of congelation, regelation, degelation, and gelation pure without preposition, take place whenever a schoolboy makes a snowball; and that miraculously rapid changes in the structure and temperature of the particles accompany the experiment of producing a star with it on an old gentleman's back. But the principal conditions of either operation are still entirely dynamic. To make your snowball hard, you must squeeze it hard; and its expansion on the recipient surface is owing to a lateral diversion of the impelling forces, and not to its regelatic properties.

6. Our first business, then, in studying a glacier, is to consider the mode of its original deposition, and the large forces of pressure and fusion brought to bear on it, with their necessary consequences on such a substance as we practically know snow to be,—a powder, ductile by wind, compressible by weight; diminishing by thaw, and hardening by time and frost; a thing which sticks to rough ground, and slips on smooth; which clings to the branch of a tree, and slides on a slated roof.

7. Let us suppose, then, to begin with, a volcanic cone in which the crater has been filled, and the temperature cooled, and which is now exposed to its first season of glacial agencies. Then let Plate 1, Fig. 1, represent this mountain, with part of the plans at its foot under an equally distributed depth of a first winter's snow, and place the level of perpetual snow at any point you like—for simplicity's sake, I put it halfway up the cone. Below this snow-line, all snow disappears in summer; but above it, the higher we ascend, the more of course we find remaining. It is quite wonderful how few feet in elevation make observable difference in the quantity of snow that will lie. This last winter, in crossing the moors of the peak of Derbyshire, I found, on the higher masses of them, that ascent certainly not greater than that at Harrow from the bottom of the hill to the school-house, made all the difference between easy and difficult travelling, by the change in depth of snow.

8. At the close of the summer, we have then the remnant

represented in Fig. 2, on which the snows of the ensuing winter take the form in Fig. 3 ; and from this greater heap we shall have remaining a greater remnant, which, supposing no wind or other disturbing force modified its form, would appear as at Fig. 4 ; and, under such necessary modification, together with its own deliquescence, would actually take some such figure as that shown at Fig. 5.

Now, what is there to hinder the continuance of accumulation? If we cover this heap with another layer of winter's snow (Fig. 6), we see at once that the ultimate condition would be, unless somehow prevented, one of enormous mass, superincumbent on the peak—like a colossal haystack, and extending far down its sides below the level of the snow-line.

You are, however, doubtless well aware that no such accumulation as this ever does take place on a mountain-top.

9. So far from it, the eternal snows do not so much as fill the basins between mountain-tops ; but, even in these hollows, form depressed sheets at the bottom of them. The difference between the actual aspect of the Alps, and that which they would present if no arrest of the increasing accumulation on them took place, may be shown before you with the greatest ease ; and in doing so I have, in all humility, to correct a grave error of my own, which, strangely enough, has remained undetected, or at least unaccused, in spite of all the animosity provoked by my earlier writings.

10. When I wrote the first volume of 'Modern Painters,' scarcely any single fact was rightly known by anybody, about either the snow or ice of the Alps. Chiefly the snows had been neglected : very few eyes had ever seen the higher snows near ; no foot had trodden the greater number of Alpine summits ; and I had to glean what I needed for my pictorial purposes as best I could,—and my best in this case was a blunder. The thing that struck me most, when I saw the Alps myself, was the enormous accumulation of snow on them ; and the way it clung to their steep sides. Well, I said to myself, 'of course it must be as thick as it can stand ; because, as there is an excess which doesn't melt, it would go on building itself up like the Tower of Babel, unless it tumbled off

There must be always, at the end of winter, as much snow on every high summit as it can carry.'

There *must*, I said. That is the mathematical method of science as opposed to the artistic. Thinking of a thing, and demonstrating,—instead of looking at it. Very fine, and very sure, if you happen to have before you all the elements of thought; but always very dangerously inferior to the unpretending method of sight—for people who have eyes, and can use them. If I had only *looked* at the snow carefully, I should have seen that it wasn't anywhere as thick as it could stand or lie—or, at least, as a hard substance, though deposited in powder, could stand. And then I should have asked myself, with legitimate rationalism, why it didn't; and if I had but asked—Well, it's no matter what perhaps might have happened if I had. I never did.

11. Let me now show you, practically, how great the error was. Here is a little model of the upper summits of the Bernese range. I shake over them as much flour as they will carry; now I brush it out of the valleys, to represent the melting. Then you see what is left stands in these domes and ridges, representing a mass of snow about six miles deep. That is what the range would be like, however, if the snow stood up as the flour does; and snow is at least, you will admit, as adhesive as flour.

12. But, you will say, the scale is so different, you can't reason from the thing on that scale. A most true objection. You cannot; and therefore I beg you, in like manner, not to suppose that Professor Tyndall's experiments on "a straight prism of ice, four inches long, an inch wide, and a little more than an inch in depth," * are conclusive as to the modes of glacier motion.

In what respect then, we have to ask, would the difference in scale modify the result of the experiment made here on the table, supposing this model was the Jungfrau itself, and the flour supplied by a Cyclopean miller and his men?

13. In the first place, the lower beds of a mass six miles

* 'Glaciers of the Alps,' p. 348.

deep would be much consolidated by pressure. But would they be *only* consolidated? Would they be in nowise squeezed out at the sides?

The answer depends of course on the nature of flour, and on its conditions of dryness. And you must feel in a moment that, to know what an Alpine range would look like,' heaped with any substance whatever, as high as the substance would stand—you must first ascertain how high the given substance *will* stand—on level ground. You might perhaps heap your Alp high with wheat,—not so high with sand,—nothing like so high with dough; and a very thin coating indeed would be the utmost possible result of any quantity whatever of showers of manna, if it had the consistence, as well as the taste, of wafers made with honey.

14. It is evident, then, that our first of inquiries bearing on the matter before us, must be, How high will snow stand on level ground, in a block or column? Suppose you were to plank in a square space, securely—twenty feet high—thirty—fifty; and to fill it with dry snow. How high could you get your pillar to stand, when you took away the wooden walls? and when you reached your limit, or approached it, what would happen?

Three more questions instantly propose themselves; namely, What happens to snow under given pressure? will it under some degrees of pressure change into anything else than snow? and what length of time will it take to effect the change?

Hitherto, we have spoken of snow as dry only, and therefore as solid substance, permanent in quantity and quality. You know that it very often is not dry; and that, on the Alps, in vast masses, it is throughout great part of the year thawing, and therefore diminishing in quantity.

It matters not the least, to our general inquiry, how much of it is wet, or thawing, or at what times. I merely at present have to introduce these two conditions as elements in the business. It is not dry snow always, but often soppy snow—snow and water,—that you have to squeeze. And it is not freezing snow always, but very often thawing snow,

—diminishing therefore in bulk every instant,—that you have to squeeze.

It does not matter, I repeat, to our immediate purpose, when, or how far, these other conditions enter our ground; but it is best, I think, to put the dots on the i's as we go along. You have heard it stated, hinted, suggested, implied, or whatever else you like to call it, again and again, by the modern school of glacialists, that the discoveries of James Forbes were anticipated by Rendu.

15. I have myself more respect for Rendu than any modern glacialist has. He was a man of de Saussure's temper, and of more than de Saussure's intelligence; and if he hadn't had the misfortune to be a bishop, would very certainly have left James Forbes's work a great deal more than cut out for him; —stitched—and pretty tightly—in most of the seams. But he was a bishop; and could only examine the glaciers to an episcopic extent; and guess, the best he could, after that. His guesses are nearly always splendid; but he must needs sometimes reason as well as guess; and he reasons himself with beautiful plausibility, ingenuity, and learning, up to the conclusion—which he announces as positive—that it always freezes on the Alps, even in summer. James Forbes was the first who ascertained the fallacy of this episcopal position; and who announced—to our no small astonishment—that it always thawed on the Alps, even in winter.

16. Not superficially of course, nor in all places. But internally, and in a great many places. And you will find it is an ascertained fact—the first great one of which we owe the discovery to him—that all the year round, you must reason on the masses of aqueous deposit on the Alps as, practically, in a state of squash. Not freezing ice or snow, nor dry ice or snow, but in many places saturated with,—everywhere affected by,—moisture; and always subject, in enormous masses, to the conditions of change which affect ice or snow at the freezing-point, and not below it. Even James Forbes himself scarcely, I think, felt enough the importance of this element of his own discoveries, in all calculations of glacier motion. He sometimes speaks of his glacier a little too simply as if it

were a stream of *undiminishing* substance, as of treacle or tar, moving under the action of gravity only; and scarcely enough recognizes the influence of the subsiding languor of its fainting mass, as a constant source of motion; though nothing can be more accurate than his actual account of its results on the surface of the Mer de Glace, in his fourth letter to Professor Jameson.

17. Let me drive the notion well home in your own minds, therefore, before going farther. You may permanently secure it, by an experiment easily made by each one of you for yourselves this evening, and that also on the minute and easily tenable scale which is so approved at the Royal Institution; for in this particular case the material conditions may indeed all be represented in very small compass. Pour a little hot water on a lump of sugar in your teaspoon. You will immediately see the mass thaw, and subside by a series of, in miniature, magnificent and appalling catastrophes, into a miniature glacier, which you can pour over the edge of your teaspoon into your saucer; and if you will then add a little of the brown sugar of our modern commerce—of a slightly sandy character,—you may watch the rate of the flinty erosion upon the soft silver of the teaspoon at your ease, and with Professor Ramsay's help, calculate the period of time necessary to wear a hole through the bottom of it.

I think it would be only tiresome to you if I carried the inquiry farther by progressive analysis. You will, I believe, permit, or even wish me, rather to state summarily what the facts are:—their proof, and the process of their discovery, you will find incontrovertibly and finally given in this volume, classical, and immortal in scientific literature—which, twenty-five years ago, my good master Dr. Buckland ordered me, in his lecture-room at the Ashmolean, to get,—as closing all question respecting the nature and cause of glacier movement,—James Forbes's 'Travels in the Alps.'

18. The entire mass of snow and glacier, (the one passing gradually and by infinite modes of transition into the other, over the whole surface of the Alps,) is one great accumulation of ice-cream, poured upon the tops, and *flowing* to the bot-

toms, of the mountains, under precisely the same special condition of gravity and coherence as the melted sugar poured on the top of a bride-cake; but on a scale which induces forms and accidents of course peculiar to frozen water, as distinguished from frozen syrup, and to the scale of Mont Blanc and the Jungfrau, as compared to that of a bride-cake. Instead of an inch thick, the ice-cream of the Alps will stand two hundred feet thick,—no thicker, anywhere, if it can run off; but will lie in the hollows like lakes, and clot and cling about the less abrupt slopes in festooned wreaths of rich mass and sweeping flow, breaking away, where the steepness becomes intolerable, into crisp precipices and glittering cliffs.

19. Yet never for an instant motionless—never for an instant without internal change, through all the gigantic mass, of the relations to each other of every crystal grain. That one which you break now from its wave-edge, and which melts in your hand, has had no rest, day nor night, since it faltered down from heaven when you were a babe at the breast; and the white cloud that scarcely veils yonder summit—seven-colored in the morning sunshine—has strewed it with pearly hoar-frost, which will be on this spot, trodden by the feet of others, in the day when you also will be trodden under feet of men, in your grave.

20. Of the infinite subtlety, the exquisite constancy of this fluid motion, it is nearly impossible to form an idea in the least distinct. We hear that the ice advances two feet in the day; and wonder how such a thing can be possible, unless the mass crushed and ground down everything before it. But think a little. Two feet in the day is a foot in twelve hours, —only an inch in an hour, (or say a little more in the daytime, as less in the night,)—and that is maximum motion in mid-glacier. If your Geneva watch is an inch across, it is three inches round, and the minute-hand of it moves three times faster than the fastest ice. Fancy the motion of that hand so slow that it must take three hours to get round the little dial. Between the shores of this vast gulf of hills, the long wave of hastening ice only keeps pace with that lingering arrow, in its central crest; and that invisible motion fades away upwards

through forty years of slackening stream, to the pure light of dawn on yonder stainless summit, on which this morning's snow lies—motionless.

21. And yet, slow as it is, this infinitesimal rate of current is enough to drain the vastest gorges of the Alps of their snow, as clearly as the sluice of a canal-gate empties a lock. The mountain basin included between the Aiguille Verte, the Grandes Jorasses, and the Mont Blanc, has an area of about thirty square miles, and only one outlet, little more than a quarter of a mile wide: yet, through this the contents of the entire basin are drained into the valley of Chamounix with perfect steadiness, and cannot possibly fill the basin beyond a certain constant height above the point of overflow.

Overflow, I say, deliberately; distinguishing always the motion of this true fluid from that of the sand in an hour-glass, or stones slipping in a heap of shale. But that the nature of this distinction may be entirely conceived by you, I must ask you to pause with some attention at this word, to 'flow,'—which attention may perhaps be more prudently asked in a separate chapter.

CHAPTER IV.

LABITUR, ET LABETUR.

(Lecture given at London Institution, continued, with added Illustrations.)

1. Of course—we all know what flowing means. Well, it is to be hoped so; but I'm not sure. Let us see. The sand of the hour-glass,—do you call the motion of that flowing?

No. It is only a consistent and measured fall of many unattached particles.

Or do you call the entrance of a gas through an aperture, out of a full vessel into an empty one, flowing?

No. That is expansion—not flux.

Or the draught through the keyhole? No—is your answer,

still. Let us take instance in water itself. The *spring* of a fountain, or of a sea breaker into spray. You don't call that flowing?

No.

Nor the *fall* of a fountain, or of rain?

No.

Well, the *rising* of a breaker,—the current of water in the hollow shell of it,—is *that* flowing? No. After it has broken —rushing up over the shingle, or impatiently advancing on the sand? You begin to pause in your negative.

Drooping back from the shingle then, or ebbing from the sand? Yes; flowing, in some places, certainly, now.

You see how strict and distinct the idea is in our minds. Will you accept—I think you may,—this definition of it? Flowing is "the motion of liquid or viscous matter over solid matter, under the action of gravity, without any other impelling force."

2. Will you accuse me, in pressing this definition on you, of wasting time in mere philological nicety? Permit me, in the capacity which even the newspapers allow to me,—that of a teacher of expression,—to answer you, as often before now, that philological nicety is philosophical nicety. See the importance of it here. I said a glacier flowed. But it remains a question whether it does not also *spring*,—whether it can rise as a fountain, no less than descend as a stream.

For, broadly, there are two methods in which either a stream or glacier moves.

The first, by withdrawing a part of its mass in front, the vacancy left by which, another part supplies from behind.

That is the method of a continuous stream,—perpetual deduction,* by what precedes, of what follows.

The second method of motion is when the mass that is behind, presses, or is poured in upon, the masses before. That is the way in which a cataract falls into a pool, or a fountain into a basin.

Now, in the first case, you have catenary curves, or else

* "Ex quo illa admirabilis a majoribus aquæ facta deductio est."—Cic. de Div., 1, 44.

curves of traction, going down the stream. In the second case, you have irregularly concentric curves, and ripples of impulse and compression, succeeding each other round the pool.

3. Now the Mer de Glace is deduced down its narrow channel, like a river; and the Glacier des Bossons is deduced down its steep ravine; and both were once injected into a pool of ice in the valley below, as the Glacier of the Rhone is still. Whereupon, observe, if a stream falls into a basin—level-lipped all round—you know when it runs over it must be pushed over—lifted over. But if ice is thrown into a heap in a plain, you can't tell, without the closest observation, how violently it is pushed from behind, or how softly it is diffusing itself in front; and I had never set my eyes or wits to ascertain where compression in the mass ceased, and diffusion began, because I thought Forbes had done everything that had to be done in the matter. But in going over his work again I find he has left just one thing to be still explained; and that one chances to be left to me to show you this evening, because, by a singular and splendid Nemesis, in the obstinate rejection of Forbes's former conclusively simple experiments, and in the endeavour to substitute others of his own, Professor Tyndall has confused himself to the extreme point of not distinguishing these two conditions of deductive and impulsive flux. His incapacity of drawing, and ignorance of perspective, prevented him from constructing his diagrams either clearly enough to show him his own mistakes, or prettily enough to direct the attention of his friends to them;—and they luckily remain to us, in their absurd immortality.

4. Forbes poured viscous substance in layers down a trough; let the stream harden; cut it into as many sections as were required; and showed, in permanence, the actual conditions of such viscous motion. Eager to efface the memory of these conclusive experiments, Professor Tyndall ('Glaciers of the Alps,' page 383) substituted this literally 'superficial' one of his own. He stamped circles on the top of a viscous current; found, as it flowed, that they were drawn into ovals; but had not wit to consider, or sense to

see, whether the area of the circle was enlarged or diminished —or neither—during its change in shape. He jumped, like the rawest schoolboy, to the conclusion that a circle, becoming an oval, must necessarily be compressed! You don't compress a globe of glass when you blow it into a soda-water bottle, do you?

5. But to reduce Professor Tyndall's problem into terms. Let A F, Fig. 3, be the side of a stream of any substance whatever, and *a f* the middle of it; and let the particles at the middle move twice as fast as the particles at the sides. Now we cannot study all the phenomena of fluid motion in one diagram, nor any one phenomenon of fluid motion but by progressive diagrams; and this first one only shows the changes of form which would take place in a substance which moved with *uniform* increase of rapidity from side to centre. No fluid substance *would* so move; but you can only trace the geometrical facts step by step, from uniform increase to accelerated increase. Let the increase of rapidity, therefore, first be supposed uniform. Then, while the point A moves to B, the point *a* moves to *c*, and any points once intermediate in a right line between A and *a*, will now be intermediate in a right line between B and *c*, and their places determinable by verticals from each to each.

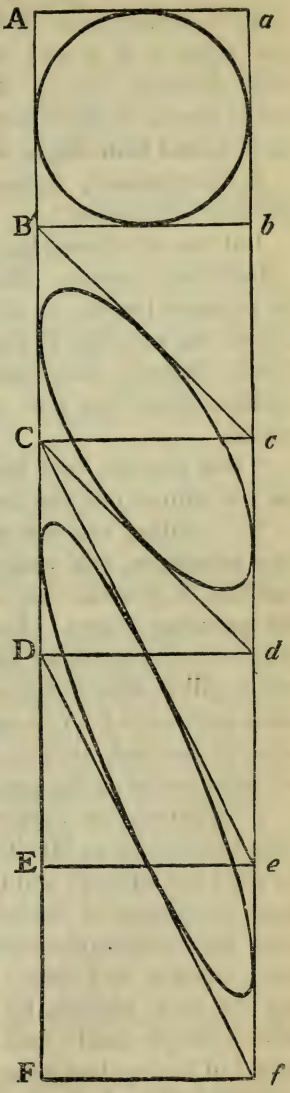


FIG. 3.

I need not be tedious in farther describing the figure

Suppose A *b* a square mile of the substance, and the origin of motion on the line A *a*. Then when the point A has arrived at B, the point B has arrived at C, the point *a* at *c*, and the point *b* at *d*, and the mile square, A *b*, has become the mile rhombic, B *d*, of the same area; and if there were a circle drawn in the square A *b*, it will become the fat ellipse in B *d*, and thin ellipse in C *f*, successively.

6. Compressed, thinks Professor Tyndall, one way, and stretched the other!

But the Professor has never so much as understood what 'stretching' means. He thinks that ice won't stretch! Does he suppose treacle, or oil, *will?* The brilliant natural philosopher has actually, all through his two books on glaciers, confused viscosity with elasticity! You can *stretch* a piece of India-rubber, but you can only *diffuse* treacle, or oil, or water.

"But you can draw these out into a narrow stream, whereas you cannot pull the ice?"

No; neither can you pull water, can you? In compressing any substance, you can apply any force you like; but in extending it, you can only apply force less than that with which its particles cohere. You can pull honey into a thin string, when it comes out of the comb; let it be candied, and you can't pull it into a thin string. Does that make it less a viscous substance? You can't stretch mortar either. It cracks even in the hod, as it is heaped. Is it, therefore, less fluent or manageable in the mass?

7. Whereas the curious fact of the matter is, that, in precise contrariety to Mr. Tyndall's idea, ice, (glacier ice, that is to say,) *will* stretch; and that treacle or water won't! and that's just the plague of dealing with the whole glacier question—that the incomprehensible, untenable, indescribable ice will both squeeze and open; and is slipping through your fingers all the time besides, by melting away. You can't deal with it as a simple fluid; and still less as a simple solid. And instead of having less power to accommodate itself to the irregularities of its bed than water, it has much more;—a great deal more of it will subside into a deep place, and ever so

much of it melt in passing over a shallow one ; and the centre, at whatever rate it moves, will supply itself by the exhaustion of the sides, instead of raging round, like a stream in back-water.

8. However, somehow, I must contrive to deal at least with the sure fact that the velocity of it is progressively greater from the sides to the centre, and from the bottom to the surface.

Now it is the last of these progressive increments which is of chief importance to my present purpose.

For my own conviction on the matter ;—mind, not *theory*, for a man can always avoid constructing theories, but cannot possibly help his convictions, and may sometimes feel it right to state them,—my own conviction is that the ice, when it is of any considerable depth, no more moves over the bottom than the lower particles of a running stream of honey or treacle move over a plate, but that, in entire rest at the bottom, except so far as it is moved by dissolution, it increases in velocity to the surface in a curve of the nature of a parabola, or a logarithmic curve, capable of being infinitely prolonged, on the supposition of the depth of the ice increasing to infinity.

9. But it is now my fixed principle not to care what I think, when a fact can be ascertained by looking, or measuring. So, not having any observations of my own on this matter, I seek what help may be had elsewhere ; and find in the eleventh chapter of Professor Tyndall's 'Glaciers of the Alps,' two most valuable observations, made under circumstances of considerable danger, calmly encountered by the author, and grumblingly by his guide,—danger consisting in the exposure to a somewhat close and well-supported fire of round and grape from the glacier of the Géant, which objected to having its velocity measured. But I find the relation of these adventures so much distract me from the matter in hand, that I must digress briefly into some notice of the general literary structure of this remarkable book.

10. Professor Tyndall never fails to observe with complacency, and to describe to his approving readers, how un-

clouded the luminous harmonies of his reason, imagination, and fancy remained, under conditions which, he rightly concludes, would have been disagreeably exciting, or even distinctly disturbing, to less courageous persons. And indeed I confess, for my own part, that my successfullest observations have always been made while lying all my length on the softest grass I could find ; and after assuring myself with extreme caution that if I chanced to go to sleep, (which in the process of very profound observations I usually do, at least of an afternoon,) I am in no conceivable peril beyond that of an ant-bite. Nevertheless, the heroic Professor does not, it seems to me, sufficiently recognize the universality of the power of English, French, German, and Italian gentlemen to retain their mental faculties under circumstances even of more serious danger than the crumbling of a glacier moraine ; and to think with quickness and precision, when the chances of death preponderate considerably, or even conclusively, over those of life. Nor does Professor Tyndall seem to have observed that the gentlemen possessing this very admirable power in any high degree, do not usually think their own emotions, or absence of emotions, proper subjects of printed history, and public demonstration.

11. Nevertheless, when a national philosopher, under showers of granite grape, places a stake and auger against his heart, buttons his coat upon them, and cuts himself an oblique staircase up a wall of ice, nearly vertical, to a height of forty feet from the bottom ; and there, unbuttoning his coat, pierces the ice with his auger, drives in his stake, and descends without injury, though during the whole operation his guide "growls audibly," we are bound to admit his claim to a scientific Victoria Cross—or at least crosslet,—and even his right to walk about in our London drawing-rooms in a gracefully cruciferous costume ; while I have no doubt also that many of his friends will be interested in such metaphysical particulars and examples of serene mental analysis as he may choose to give them in the course of his autobiography. But the Professor ought more clearly to understand that scientific writing is one thing, and pleasant autobiography another ;

and though an officer may not be able to give an account of a battle without involving some statement of his personal share in it, a scientific observer might with entire ease, and much convenience to the public, have published 'The Glaciers of the Alps' in two coincident, but not coalescing, branches—like the glaciers of the Giant and Léchaud; and that out of the present inch and a half thickness of the volume, an inch and a quarter might at once have been dedicated to the Giant glacier of the autobiography, and the remaining quarter of an inch to the minor current of scientific observation, which, like the Glacier de Léchaud, appears to be characterized by "the comparative shallowness of the upper portion," * and by its final reduction to "a driblet measuring about one-tenth of its former transverse dimensions."

12. It is true that the book is already divided into two portions,—the one described as "chiefly narrative," and the other as "chiefly scientific." The chiefly narrative portion is, indeed, full of very interesting matter fully justifying its title; as, for instance, "We tumbled so often in the soft snow, and our clothes and boots were so full of it, that we thought we might as well try the sitting posture in sliding down. We did so, and descended with extraordinary velocity" (p. 116). Or again: "We had some tea, which had been made at the Montanvert, and carried up to the Grand Mulets in a bottle. My memory of that tea is not pleasant" (p. 73). Or in higher strains of scientific wit and pathos: "As I looked at the objects which had now become so familiar to me, I felt that, though not viscous, the ice did not lack the quality of adhesiveness, and I felt a little sad at the prospect of bidding it so soon farewell."

13. But the merely romantic readers of this section, rich though it be in sentiment and adventure, will find themselves every now and then arrested by pools, as it were, of almost impassable scientific depth—such as the description of a rock "evidently to be regarded as an assemblage of magnets, or as a single magnet full of consequent points" (p. 140). While, on the other hand, when in the course of my own work, find-

* 'Glaciers of the Alps,' p. 288.

ing myself pressed for time, and eager to collect every scrap of ascertained data accessible to me, I turn hopefully to the eleventh chapter of the "chiefly scientific" section of the volume, I think it hard upon me that I must read through three pages of narrative describing the Professor's dangers and address, before I can get at the two observations which are the sum of the scientific contents of the chapter, yet to the first of which "unfortunately some uncertainty attached itself," and the second of which is wanting in precisely the two points which would have made it serviceable. First, it does not give the rate of velocity at the base, but five feet above the base; and, secondly, it gives only three measurements of motion. Had it given four, we could have drawn the curve; but we can draw any curve we like through three points.

14. I will try the three points, however, with the most probable curve; but this being a tedious business, will reserve it for a separate chapter, which readers may skip if they choose: and insert, for the better satisfaction of any who may have been left too doubtful by the abrupt close of my second chapter, this postscript, written the other day after watching the streamlets on the outlying fells of Shap.

15. Think what would be the real result, if any stream among our British hills at this moment *were* cutting its bed deeper.

In order to do so, it must of course annually be able to remove the entire zone of débris moved down to its bed from the hills on each side of it—and somewhat more.

Take any Yorkshire or Highland stream you happen to know, for example; and think what quantity of débris must be annually moved, on the hill surfaces which feed its waters. Remember that a lamb cannot skip on their slopes, but it stirs with its hoofs some stone or grain of dust which will more or less roll or move downwards. That no shower of rain can fall—no wreath of snow melt, without moving some quantity of dust downwards. And that no frost can break up, without materially loosening some vast ledges of crag, and innumerable minor ones; nor without causing the fall of others as vast, or as innumerable. Make now some effort to

conceive the quantity of rock and dust moved annually, lower, past any given level traced on the flanks of any considerable mountain stream, over the area it drains—say, for example, in the basin of the Ken above Kendal, or of the Wharfe above Bolton Abbey.

16. Then, if either of those streams were cutting their beds deeper,—that quantity of rock, and something more, must be annually carried down by their force, past Kendal bridge, and Bolton stepping-stones. Which you will find would occasion phenomena very astonishing indeed to the good people of Kendal and Wharfedale.

17. "But it need not be carried down past the stepping-stones," you say—"it may be deposited somewhere above." Yes, that is precisely so;—and wherever it *is* deposited, the bed of the stream, or of some tributary streamlet, is being raised. Nobody notices the raising of it;—another stone or two among the wide shingle—a tongue of sand an inch or two broader at the burnside—who can notice that? Four or five years pass;—a flood comes;—and Farmer So-and-So's field is covered with slimy ruin. And Farmer So-and-So's field is an inch higher than it was, for evermore—but who notices that? The shingly stream has gone back into its bed: here and there a whiter stone or two gleams among its pebbles, but next year the water stain has darkened them like the rest, and the bed is just as far below the level of the field as it was. And your careless geologist says, 'what a powerful stream it is, and how deeply it is cutting its bed through the glen!'

18. Now, carry out this principle for existing glaciers. If the glaciers of Chamouni were cutting their beds deeper, either the annual line of débris of the Mont Blanc range on its north side must be annually carried down past the Pont Pelissier; or the valley of Chamouni must be in process of filling up, while the ravines at its sides are being cut down deeper. Will any geologist, supporting the modern glacial theories, venture to send me, for the next number of Deucalion, his idea, on this latter, by him inevitable, hypothesis, of the profile of the bottom of the Glacier des Bossons, a thousand years ago: and a thousand years hence?

CHAPTER V.

THE VALLEY OF CLUSE.

1. What strength of faith men have in each other; and how impossible it is for them to be independent in thought, however hard they try! Not that they ever ought to be: but they should know, better than they do, the incumbrance that the false notions of others are to them.

Touching this matter of glacial grinding action; you will find every recent writer taking up, without so much as a thought of questioning it, the notion adopted at first careless sight of a glacier stream by some dull predecessor of all practical investigation—that the milky colour of it is all produced by dust ground off the rocks at the bottom. And it never seems to occur to any one of the Alpine Club men, who are boasting perpetually of their dangers from falling stones; nor even to professors impeded in their most important observations by steady fire of granite grape, that falling stones may probably knock their edges off when they strike; and that moving banks and fields of moraine, leagues long, and leagues square, of which every stone is shifted a foot forward every day on a surface melting beneath them, must in such shifting be liable to attrition enough to produce considerably more dust, and that of the finest kind, than any glacier stream carries down with it—not to speak of processes of decomposition accelerated, on all surfaces liable to them, by alternate action of frost and fierce sunshine.

2. But I have not, as yet, seen any attempts to determine even the first data on which the question of attrition must be dealt with. I put it, in simplicity, at the close of last chapter. But, in its full extent, the inquiry ought not to be made merely of the bed of the Glacier des Bossons; but of the bed of the Arve, from the Col de Balme to Geneva; in which the really important points for study are the action of its waters at Pont Pelissier;—at the falls below Servoz;—at the portal

of Cluse ;—and at the northern end of the slope of the Salève.

3. For these four points are the places where, if at all, sculptural action is really going on upon its bed : at those points, if at all, the power of the Second Æra, the æra of sculpture, is still prolonged into this human day of ours. As also it is at the rapids and falls of all swiftly descending rivers. The one vulgar and vast deception of Niagara has blinded the entire race of modern geologists to the primal truth of mountain form, namely, that the rapids and cascades of their streams indicate, not points to which the falls have receded, but places where the remains of once colossal cataracts still exist, at the places eternally (in human experience) appointed for the formation of such cataracts, by the form and hardness of the local rocks. The rapids of the Amazon, the Nile, and the Rhine, obey precisely the same law as the little Wharfe at its Strid, or as the narrow 'rivus aquæ' which, under a bank of strawberries in my own tiny garden, has given me perpetual trouble to clear its channel of the stones brought down in flood, while, just above, its place of picturesque cascade, is determined for it by a harder bed of Coniston flags, and the little pool, below that cascade, never encumbered with stones at all.

4. Now the bed of the Arve, from the crest of the Col de Balme to Geneva, has a fall of about 5,000 feet; and if any young Oxford member of the Alpine Club is minded to do a piece of work this vacation, which in his old age, when he comes to take stock of himself, and edit the fragments of himself, as I am now sorrowfully doing, he will be glad to have done, (even though he risked neither his own nor any one else's life to do it,) let him survey that bed accurately, and give a profile of it, with the places and natures of emergent rocks, and the ascertainable depths and dates of alluvium cut through, or in course of deposition.

5. After doing this piece of work carefully, he will probably find some valuable ideas in his head concerning the proportion of the existing stream of the Arve to that which once flowed from the glacier which deposited the moraine of Les Tines ; and again, of that torrent to the infinitely vaster one

of the glacier that deposited the great moraine of St. Gervais; and finally of both, to the cliffs of Cluse, which have despised and resisted them. And ideas which, after good practical work, he finds in his head, are likely to be good for something: but he must not seek for them; all thoughts worth having come like sunshine, whether we will or no: the thoughts not worth having, are the little lucifer matches we strike ourselves.

6. And I hasten the publication of this number of Deucalion, to advise any reader who cares for the dreary counsel of an old-fashioned Alpine traveller, to see the valley of Cluse this autumn, if he may, rather than any other scene among the Alps;—for if not already destroyed, it must be so, in a few months more, by the railway which is to be constructed through it, for the transport of European human diluvium. The following note of my last walk there, written for my autumn lectures, may be worth preserving among the shingle of my scattered work.

7. I had been, for six months in Italy, never for a single moment quit of liability to interruption of thought. By day or night, whenever I was awake, in the streets of every city, there were entirely monstrous and inhuman noises in perpetual recurrence. The violent rattle of carriages, driven habitually in brutal and senseless haste, or creaking and thundering under loads too great for their cattle, urged on by perpetual roars and shouts: wild bellowing and howling of obscene wretches far into the night: clashing of church bells, in the morning, dashed into reckless discord, from twenty towers at once, as if rung by devils to defy and destroy the quiet of God's sky, and mock the laws of His harmony: filthy, stridulous shrieks and squeaks, reaching for miles into the quiet air, from the railroad stations at every gate: and the vociferation, endless, and frantic, of a passing populace whose every word was in mean passion, or in unclean jest. Living in the midst of this, and of vulgar sights more horrible than the sounds, for six months, I found myself—suddenly, as in a dream—walking again alone through the valley of Cluse, unchanged since I knew it first, when I was a boy of fifteen,

quite forty years ago ;—and in perfect quiet, and with the priceless completion of quiet, that I was without fear of any outcry or base disturbance of it.

8. But presently, as I walked, the calm was deepened, instead of interrupted, by a murmur—first low, as of bees, and then rising into distinct harmonious chime of deep bells, ringing in true cadences—but I could not tell where. The cliffs on each side of the valley of Cluse vary from 1,500 to above 2,000 feet in height; and, without absolutely echoing the chime, they so accepted, prolonged, and diffused it, that at first I thought it came from a village high up and far away among the hills; then presently it came down to me as if from above the cliff under which I was walking; then I turned about and stood still, wondering; for the whole valley was filled with the sweet sound, entirely without local or conceivable origin: and only after some twenty minutes' walk, the depth of tones, gradually increasing, showed me that they came from the tower of Maglans in front of me ; but when I actually got into the village, the cliffs on the other side so took up the ringing, that I again thought for some moments I was wrong.

Perfectly beautiful, all the while, the sound, and exquisitely varied,—from ancient bells of perfect tone and series, rung with decent and joyful art.

"What are the bells ringing so to-day for,—it is no fête ?" I asked of a woman who stood watching at a garden gate.

"For a baptism, sir."

And so I went on, and heard them fading back, and lost among the same bewildering answers of the mountain air.

9. Now that half-hour's walk was to me, and I think would have been to every man of ordinarily well-trained human and Christian feeling—I do not say merely worth the whole six months of my previous journey in Italy ;—it was a reward for the endurance and horror of the six months' previous journey ; but, as many here may not know what the place itself is like, and may think I am making too much of a little pleasant bell-ringing, I must tell you what the valley of Cluse is in itself.

10. Of 'Cluse,' the closed valley,—not a ravine, but a

winding plain, between very great mountains, rising for the most part in cliffs—but cliffs which retire one behind the other above slopes of pasture and forest. (Now as I am writing this passage in a country parsonage—of Cowsley, near Uxbridge,—I am first stopped by a railroad whistle two minutes and a half long,* and then by the rumble and grind of a slow train, which prevents me from hearing my own words, or being able to think, so that I must simply wait for ten minutes, till it is past.)

It being past, I can go on. Slopes of pasture and forest, I said, mingled with arable land, in a way which you can only at present see in Savoy; that is to say, you have walnut and fruit trees of great age, mixed with oak, beech, and pine, as they all choose to grow—it seems as if the fruit trees planted themselves as freely as the pines. I imagine this to be the consequence of a cultivation of very ancient date under entirely natural laws; if a plum-tree or a walnut planted itself, it was allowed to grow; if it came in the way of anything or anybody, it would be cut down; but on the whole the trees grew as they liked; and the fields were cultivated round them in such spaces as the rocks left;—ploughed, where the level admitted, with a ploughshare lightly constructed, but so huge that it looks more like the beak of a trireme than a plough, two oxen forcing it to heave aside at least two feet depth of the light earth;—no fences anywhere; winding field walks, or rock paths, from cottage to cottage; these last not of the luxurious or trim Bernese type, nor yet comfortless châlets; but sufficient for orderly and virtuous life: in outer aspect, beautiful exceedingly, just because their steep roofs, white walls, and wandering vines had no pretence to perfectness, but were wild as their hills. All this pastoral country lapped into inlets among the cliffs, vast belts of larch and pine cresting or clouding the higher ranges, whose green meadows change as they rise, into mossy slopes and fade away at last among the grey ridges of rock that are soonest silvered with autumnal snow.

* Counted by watch, for I knew by its manner it would last, and measured it.

11. The ten-miles length of this valley, between Cluse and St. Martin's, include more scenes of pastoral beauty and mountain power than all the poets of the world have imagined ; and present more decisive and trenchant questions respecting mountain structure than all the philosophers of the world could answer : yet the only object which occupies the mind of the European travelling public, respecting it, is to get through it, if possible, under the hour.

12. I spoke with sorrow, deeper than my words attempted to express, in my first lecture, of the blind rushing of our best youth through the noblest scenery of the Alps, without once glancing at it, that they might amuse, or kill, themselves on their snow. That the claims of all sweet pastoral beauty, of all pious domestic life, for a moment's pause of admiration or sympathy, should be unfelt, in the zest and sparkle of boy's vanity in summer play, may be natural at all times ; and inevitable while our youth remain ignorant of art, and defiant of religion ; but that, in the present state of science, when every eye is busied with the fires in the Moon and the shadows in the Sun, no eye should occupy itself with the ravines of its own world, nor with the shadows which the sun casts on the cliffs of them ; that the simplest,—I do not say problems, but bare facts, of structure,—should still be unrepresented, and the outmost difficulties of rock history untouched ; while dispute, and babble, idler than the chafed pebbles of the wavering beach, clink, jar, and jangle on from year to year in vain, —surely this, in our great University, I am bound to declare to be blameful ; and to ask you, with more than an artist's wonder, why this fair valley of Cluse is now closed indeed, and forsaken, "clasped like a missal shut where Paynims pray ;" and, with all an honest inquirer's indignation, to challenge—in the presence of our Master of Geology, happily one of its faithful and true teachers,* the Speakers concerning the Earth,—the geologists, not of England only, but of Europe and America,—

* Mr. Prestwich. I have to acknowledge, with too late and vain gratitude, the kindness and constancy of the assistance given me, on all occasions when I asked it, by his lamented predecessor in the Oxford Professorship of Geology, Mr. Phillips.

either to explain to you the structure or sculpture of this* renownedest cliff in all the Alps, under which Tell leaped ashore; or to assign valid reason for the veins in the pebbles which every Scotch lassie wears for her common jewellery.

CHAPTER VI.

OF BUTTER AND HONEY.

1. The last chapter, being properly only a continuation of the postscript to the fourth, has delayed me so long from my question as to ice-curves, that I cannot get room for the needful diagrams and text in this number; which is perhaps fortunate, for I believe it will be better first to explain to the reader more fully why the ascertainment of this curve of vertical motion is so desirable.

To which explanation, very clear definition of some carelessly used terms will be essential.

2. The extremely scientific Professor Tyndall always uses the terms Plastic, and Viscous, as if they were synonymous. But they express entirely different conditions of matter. The first is the term proper to be used of the state of butter, on which you can stamp whatever you choose; and the stamp will stay; the second expresses that of honey, on which you can indeed stamp what you choose; but the stamp melts away forthwith.

And of viscosity itself there are two distinct varieties—one glutinous, or gelatinous, like that of treacle or tapioca soup; and the other simply adhesive, like that of mercury or melted lead.

And of both plasticity and viscosity there are infinitely various degrees in different substances, from the perfect and absolute plasticity of gold, to the fragile, and imperfect, but to man more precious than any quality of gold, plasticity of

* The cliff between Fluelen and Brunnen, on the lake of Uri, of which Turner's drawing was exhibited at this lecture.

clay, and, most precious of all, the blunt and dull plasticity of dough; and again, from the vigorous and binding viscosity of stiff glue, to the softening viscosity of oil, and tender viscosity of old wine. I am obliged therefore to ask my readers to learn, and observe very carefully in our future work, these following definitions.

Plastic.—Capable of change of form under external force, without any loss of continuity of substance; and of *retaining afterwards the form imposed on it.*

Gold is the most perfectly plastic substance we commonly know; clay, butter, etc., being more coarsely and ruggedly plastic, and only in certain consistencies or at certain temperatures.

Viscous.—Capable of change of form under external force, *but not of retaining the form imposed;* being languidly obedient to the force of gravity, and necessarily declining to the lowest possible level,—as lava, treacle, or honey.

Ductile.—Capable of being extended by traction without loss of continuity of substance. Gold is both plastic and ductile; but clay, plastic only, not ductile; while most melted metals are ductile only, but not plastic.

Malleable.—Plastic only under considerable force.

3. We must never let any of these words entangle, as necessary, the idea belonging to another.

A plastic substance is not necessarily ductile, though gold is both; a viscous substance is not necessarily ductile, though treacle is both; and the quality of elasticity, though practically inconsistent with the character either of a plastic body, or a viscous one, may enter both the one and the other as a gradually superadded or interferent condition, in certain states of congelation; as in india-rubber, glass, sealing-wax, asphalt, or basalt.

I think the number of substances I have named in this last sentence, and the number of entirely different states which in an instant will suggest themselves to you, as characteristic of each, at, and above, its freezing or solidifying point, may show at once how careful we should be in defining the notion attached to the words we use; and how inadequate, without

specific limitation and qualification, *any* word must be, to express all the qualities of any given substance.

4. But, above all substances that can be proposed for definition of quality, glacier ice is the most defeating. For it is practically plastic ; but *actually* viscous ;—and that to the full extent. You can beat or hammer it, like gold ; and it will stay in the form you have beaten it into, for a time ;—and so long a time, that, on all instant occasions of plasticity, it is practically plastic. But only have patience to wait long enough, and it will run down out of the form you have stamped on it, as honey does, so that, actually and inherently, it is viscous, and not plastic.

5. Here then, at last, I have got Forbes's discovery and assertion put into accurately intelligible terms ;—very incredible terms, I doubt not, to most readers.

There is not the smallest hurry, however, needful in believing them ; only let us understand clearly what it is we either believe or deny ; and in the meantime, return to our progressive conditions of snow on the simplest supposable terms, as shown in my first plate.

6. On a conical mountain, such as that represented in Fig. 6, we are embarrassed by having to calculate the subtraction by avalanche down the slopes. Let us therefore take rather, for examination, a place where the snow can lie quiet.

Let Fig. 7, Plate I., represent a hollow in rocks at the summit of a mountain above the line of perpetual snow, the lowest watershed being at the level indicated by the dotted line. Then the snow, once fallen in this hollow, can't get out again ; but a little of it is taken away every year, partly by the heat of the ground below, partly by surface sunshine and evaporation, partly by filtration of water from above, while it is also saturated with water in thaw-time, up to the level of watershed. Consequently it must subside every year in the middle ; and, as the mass remains unchanged, the same quantity must be added every year at the top,—the excess being always, of course, blown away, or dropped off, or thawed above, in the year it falls.

7. Hence the entire mass will be composed, at any given

time, of a series of beds somewhat in the arrangement given in Fig. 8; more remaining of each year's snow in proportion to its youth, and very little indeed of the lowest and oldest bed.

It *must* subside, I say, every year;—but how much is involved, of new condition, in saying this? Take the question in the simplest possible terms; and let Fig. 9 represent a cup or crater full of snow, level in its surface at the end of winter. During the summer, there will be large superficial melting; considerable lateral melting by reverberation from rock, and lateral drainage; bottom melting from ground heat, not more than a quarter of an inch,—(Forbes's Travels, page 364,)—a quantity which we may practically ignore. Thus the mass, supposing the substance of it immovable in position, would be reduced by *superficial* melting during the year to the form approximately traced by the dotted line within it, in Fig. 9.

8. But how of the *interior* melting? Every interstice and fissure in the snow, during summer, is filled either with warm air, or warm water in circulation through it, and every separate surface of crystal is undergoing its own degree of diminution. And a constant change in the conditions of equilibrium results on every particle of the mass; and a constant subsidence takes place, involving an entirely different relative position of every portion of it at the end of the year.

9. But I cannot, under any simple geometrical figure, give an approximation to the resultant directions of change in form; because the density of the snow must be in some degree proportioned to the depth, and the melting less, in proportion to the density.

Only at all events, towards the close of the year, the mass enclosed by the dotted line in Fig. 9 will have sunk into some accommodation of itself to the hollow bottom of the crater, as represented by the continuous line in Fig. 10. And, over that, the next winter will again heap the snow to the cup-brim, to be reduced in the following summer; but now through two different states of consistence, to the bulk limited by the dotted line in Fig. 10.

10. In a sequence of six years, therefore, we shall have a

series of beds approximately such as in Fig. 11 ;—approximate ly observe, I say always, being myself wholly unable to deal with the complexities of the question, and only giving the diagram for simplest basis of future investigation, by the first man of mathematical knowledge and practical common sense, who will leave off labouring for the contradiction of his neighbours, and apply himself to the hitherto despised toil of the ascertainment of facts. And when he has determined what the positions of the strata will be in a perfectly uniform cup, such as that of which the half is represented in perspective in Fig. 12, let him next inquire what would have happened to the mass, if, instead of being deposited in a cup enclosed, on all sides, it had been deposited in an amphitheatre open on one, as in the section shown in Fig. 12. For that is indeed the first radical problem to be determined respecting glacier motion.

Difficult enough, if approached even with a clear head, and open heart; acceptant of all help from former observers, and of all hints from nature and heaven ; but very totally insoluble, when approached by men whose poor capacities for original thought are unsteadied by conceit, and paralyzed by envy.

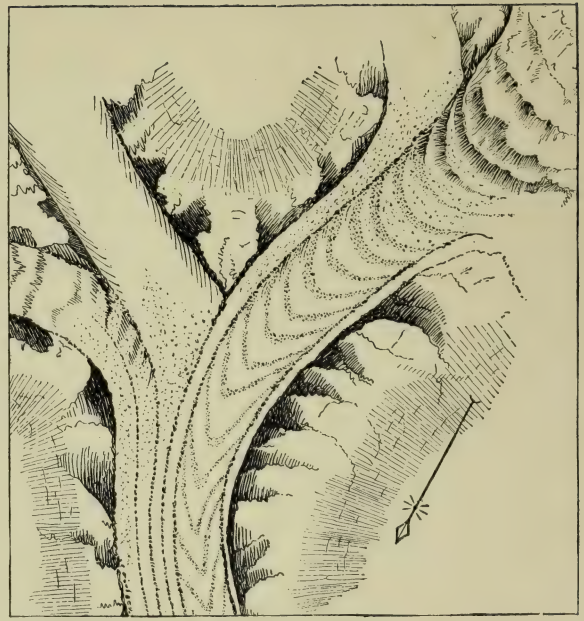
11. In my second plate, I have given, side by side, a reduction, to half-scale, of part of Forbes's exquisite chart of the Mer de Glace, published in 1845, from his own survey made in 1842; and a reproduction, approximately in facsimile, of Professor Tyndall's woodcut, from his own 'eye-sketch' of the same portion of the glacier "as seen from the cleft station, Trélaporte," published in 1860.*

That Professor Tyndall is unable to draw anything as seen from anywhere, I observe to be a matter of much self-congratulation to him ; such inability serving farther to establish the sense of his proud position as a man of science, above us poor artists, who labour under the disadvantage of being able

* 'Glaciers of the Alps' p. 369. Observe also that my engraving, in consequence of the reduced scale, is grievously inferior to Forbes's work; but quite effectually and satisfactorily reproduces Professor Tyndall's, of the same size as the original.



Forbes, 1845.



Tyndall, 1860.

PLATE II.—THE PROGRESS OF MODERN SCIENCE IN GLACIER SURVEY.

with some accuracy to see, and with some fidelity to represent, what we wish to talk about. But when he found himself so resplendently inartistic, in the eye-sketch in question, that the expression of his scientific vision became, for less scientific persons, only a very bad map, it was at least incumbent on his Royally-social Eminence to ascertain whether any better map of the same places had been published before. And it is indeed clear, in other places of his book, that he was conscious of the existence of Forbes's chart; but did not care to refer to it on this occasion, because it contained the correction of a mistake made by Forbes in 1842, which Professor Tyndall wanted, himself, to have the credit of correcting; leaving the public at the same time to suppose it had never been corrected by its author.

12. This manner, and temper, of reticence, with its relative personal loquacity, is not one in which noble science can be advanced; or in which even petty science can be increased. Had Professor Tyndall, instead of seeking renown by the exposition of Forbes's few and minute mistakes, availed himself modestly of Forbes's many and great discoveries, ten years of arrest by futile discussion and foolish speculation might have been avoided in the annals of geology; and assuredly it would not have been left for a despised artist to point out to you, this evening, the one circumstance of importance in glacier structure which Forbes has not explained.

13. You may perhaps have heard I have been founding my artistic instructions lately on the delineation of a jam-pot. Delighted by the appearance of that instructive object, in the Hotel du Mont Blanc, at St. Martin's, full of Chamouni honey, of last year, stiff and white, I found it also gave me command of the best possible material for examination of glacial action on a small scale.

Pouring a little of its candied contents out upon my plate, by various tilting of which I could obtain any rate of motion I wished to observe in the viscous stream; and encumbering the sides and centre of the said stream with magnificent moraines composed of crumbs of toast, I was able, looking alternately to table and window, to compare the visible motion of the mel-

lifluous glacier, and its transported toast, with the less traceable, but equally constant, motion of the glacier of Bionnassay, and its transported granite. And I thus arrived at the perception of the condition of glacial structure, which though, as I told you just now, not, I believe, hitherto illustrated, it is entirely in your power to illustrate for yourselves in the following manner.

If you will open a fresh pot of honey to-morrow at breakfast, and take out a good table-spoonful of it, you will see, of course, the surface generally ebb in the pot. Put the table-spoonful back in a lump at one side, and you will see the surface generally flow in the pot. The lump you have put on at the side does not diffuse itself over the rest; but it sinks into the rest, and the entire surface rises round it, to its former level.

Precisely in like manner, every pound of snow you put on the top of Mont Blanc, eventually makes the surface of the glaciers rise at the bottom.*

15. That is not impulsive action, mind you. That is mere and pure viscous action—the communication of force equally in every direction among slowly moving particles. I once thought that this force might also be partially elastic, so that whereas, however vast a mass of honey you had to deal with, —a Niagara of honey,—you never could get it to leap like a sea-wave at rocks, ice might yet, in its fluency, retain this power of leaping; only slowly,—taking a long time to rise, yet obeying the same mathematic law of impulse as a sea-breaker; but ascending through æras of surge, and communicating, through æras, its recoil. The little ripple of the stream breaks on the shore,—quick, quick, quick. The Atlantic wave slowly uplifts itself to its plunge, and slowly appeases its thunder. The ice wave—if there be one—would be to the Atlantic wave as the ocean is to the brook.

If there be one! The question is of immense—of vital—importance, to that of glacier action on crag: but before attacking it, we need to know what the lines of motion are,—first, in a subsiding table-spoonful of honey; secondly, in an

* Practically hyperbolic expression, but mathematically true.

uprearing Atlantic wave ; and, thirdly, in the pulsatory festoons of a descending cataract, obtained by the *relaxation* of its mass, while the same pulsatory action is displayed, as unaccountably, by a glacier cataract,* in the *compression* of its mass.

And on applying to learned men in Oxford and Cambridge † for elucidation of these modes of motion, I find that, while they can tell me everything I don't want to know, about the collision and destruction of planets, they are not entirely clear on the subject either of the diffusion of a drop of honey from its comb, or the confusion of a rivulet among its cresses. Of which difficult matters, I will therefore reserve inquiry to another chapter ; anticipating, however, its conclusions, for the reader's better convenience, by the brief statement, that glacier ice has no power of springing whatever ;—that it cannot descend into a rock-hollow, and sweep out the bottom of it, as a cascade or a wave can ; but must always sluggishly fill it to the brim before flowing over ; and accumulate, beneath, under dead ice, quiet as the depths of a mountain tarn, the fallen ruins of its colossal shore.

* Or a stick of sealing-wax. Warm one at the fire slowly through ; and bend it into the form of a horseshoe. You will then see, through a lens of moderate power, the most exquisite facsimiles of glacier fissure produced by extension, on its convex surface, and as faithful image of glacier surge produced by compression, on its concave one.

In the course of such extension, the substance of the ice is actually expanded, (see above, Chap. IV., § 7,) by the widening of every minute fissure ; and in the course of such compression, reduced to apparently solid ice, by their closing. The experiments both of Forbes and Agassiz appear to indicate that the original fissures are never wholly effaced by compression : but I do not myself know how far the supposed result of these experiments may be consistent with ascertained phenomena of regelation.

† I have received opportune and kind help, from the other side of the Atlantic waves, in a study of them by my friend Professor Rood.

CHAPTER VII.

THE IRIS OF THE EARTH.

Lecture given at the London Institution, February 17th and March 28th, 1876,*—*the subject announced being,* "AND THE GOLD OF THAT LAND IS GOOD: THERE IS BDELLIUM AND THE ONYX STONE."

1. THE subject which you permit me the pleasure of illustrating to you this evening, namely, the symbolic use of the colours of precious stones in heraldry, will, I trust, not interest you less because forming part both of the course of education in art which I have been permitted to found in Oxford; and of that in physical science, which I am about to introduce in the Museum for working men at Sheffield.

I say 'to introduce,' not as having anything novel to teach, or show; for in the present day I think novelty the worst enemy of knowledge, and my introductions are only of things forgotten. And I am compelled to be pertinaciously—it might even seem, insolently, separate in effort from any who would help me, just because I am resolved that no pupil of mine shall see anything, or learn, but what the consent of the past has admitted to be beautiful, and the experience of the past has ascertained to be true. During the many thousand years of this world's existence the persons living upon it have produced more lovely things than any of us can ever see; and have ascertained more profitable things that any of us can ever know. Of these infinitely existing, beautiful things, I show to my pupils as many as they can thoroughly see,—not more; and of the natural facts which are positively known, I urge them to know as many as they can thoroughly know,—not more; and absolutely forbid all debate whatsoever. The time for debate is when we have become masters—not while we are

* The abrupt interpolation of this lecture in the text of Deucalion is explained in the next chapter.

students. And the wisest of masters are those who debate least.

2. For my own part—holding myself nothing better than an advanced student, guiding younger ones,—I never waste a moment of life in dispute, or discussion. It is at least ten years since I ceased to speak of anything but what I had ascertained; and thus becoming, as far as I know, the most practical and positive of men, left discourse of things doubtful to those whose pleasure is in quarrel;—content, for my pupils and myself, to range all matters under the broad head of things certain, with which we are vitally concerned, and things uncertain, which don't in the least matter.

3. In the working men's museum at Sheffield, then, I mean to place illustrations of entirely fine metal-work, including niello and engraving; and of the stones, and the Flora and Fauna, of Yorkshire, Derbyshire, Durham, and Westmoreland;* together with such foreign examples as may help to the better understanding of what we have at home. But in teaching metal-work, I am obliged to exhibit, not the uses of iron and steel only, but those also of the most precious metals, and their history; and for the understanding of any sort of stones, I must admit precious stones, and their history. The first elements of both these subjects, I hope it may not be uninteresting to follow out with me this evening.

4. I have here, in my right hand, a little round thing, and in my left a little flat one, about which, and the like of them, it is my first business to explain, in Sheffield, what may *positively* be known. They have long been, both, to me, subjects of extreme interest; and I do not hesitate to say that I know more about them than most people: but that, having learned what I can, the happy feeling of wonder is always increasing upon me—how little that is! What an utter mystery both the little things still are!

5. This first—in my right hand—is what we call a 'pebble,'† or rolled flint, presumably out of Kensington gravel-pits. I picked it up in the Park,—the first that lay loose, inside the

* Properly, Westmœreland, the district of Western Meres.

† 1. A. 1. Sheffield Museum; see Chapter VIII.

railings, at the little gate entering from Norfolk Street. I shall send it to Sheffield; knowing that like the bit of lead picked up by Saadi in the 'Arabian Nights,' it will make the fortune of Sheffield, scientifically,—if Sheffield makes the most of it, and thoroughly learns what it is.

6. What it *is*, I say—you observe; not merely, what it is *made of*. Anybody—the pitifullest apothecary round the corner, with a beggarly account of empty boxes—can tell you that. It is made of brown stuff called silicon, and oxygen, and a little iron: and so any apothecary can tell what you all who are sitting there are made of:—you, and I, and all of us, are made of carbon, nitrogen, lime, and phosphorus, and seventy per cent. or rather more of water; but then, that doesn't tell us what we are,—what a child is, or what a boy is,—much less what a man is,—least of all, what supremely inexplicable woman is. And so, in knowing only what it is made of, we don't know what a flint is.

7. To know what it is, we must know what it can do, and suffer.

That it can strike steel into white-hot fire, but can itself be melted down like water, if mixed with ashes; that it is subject to laws of form one jot of which it cannot violate, and yet which it can continually evade, and apparently disobey; that in the fulfilment of these it becomes pure,—in rebellion against them, foul and base; that it is appointed on our island coast to endure for countless ages, fortifying the sea cliff; and on the brow of that very cliff, every spring, to be dissolved, that the green blades of corn may drink it with the dew;—that in its noblest forms it is still imperfect, and in the meanest, still honorable,—this, if we have rightly learned, we begin to know what a flint is.

8. And of this other thing, in my left hand,—this flat bit of yellow mineral matter,—commonly called a 'sovereign,' not indeed to be picked up so easily as the other—(though often, by rogues, with small pains;)—yet familiar enough to the sight of most of us, and *too* familiar to our thought,—there perhaps are the like inquiries to be put. What *is* it? What can it do; and for whom? This shape given to it by

men, bearing the image of a Cæsar ;—how far does this make it a thing which is Cæsar's? the opposed image of a saint, riding against a dragon—how far does this make it a thing which is of Saints? Is its testimony true, or conceivably true, on either side? Are there yet Cæsars ruling us, or saints saving us, to whom it does of right belong?

9. And the substance of it,—not separable, this, into others, but a pure element,—what laws are over it, other than Cæsar's; what forms must it take, of its own, in eternal obedience to invisible power, if it escape our human hammer-stroke? How far, in its own shape, or in this, is it itself a Cæsar ; inevitable in authority ; secure of loyalty, loveable, and meritorious of love? For, reading its past history, we find it has been much beloved, righteously or iniquitously,—a thing to be known the grounds of, surely?

10. Nay, also of this dark and despised thing in my right hand, we must ask that higher question, has it ever been beloved? And finding in its past history that in its pure and loyal forms, of amethyst, opal, crystal, jasper, and onyx, *it* also has been much beloved of men, shall we not ask farther whether it deserves to be beloved,—whether in wisdom or folly, equity or inequity, we give our affections to glittering shapes of clay, and found our fortunes on fortitudes of stone ; and carry down from lip to lip, and teach, the father to the child, as a sacred tradition, that the Power which made us, and preserves, gave also with the leaves of the earth for our food, and the streams of the earth for our thirst, so also the dust of the earth for our delight and possession : bidding the first of the Rivers of Paradise roll stainless waves over radiant sands, and writing, by the word of the Spirit, of the Rocks that it divided, "The gold of that land is good ; there also is the crystal, and the onyx stone."

11. Before I go on, I must justify to you the familiar word I have used for the rare one in the text.

If with mere curiosity, or ambitious scholarship, you were to read the commentators on the Pentateuch, you might spend, literally, many years of life, on the discussions as to the kinds of the gems named in it ; and be no wiser at the

end than you were at the beginning. But if, honestly and earnestly desiring to know the meaning of the book itself, you set yourself to read with such ordinary help as a good concordance and dictionary, and with fair knowledge of the two languages in which the Testaments have been clearly given to us, you may find out all you need know, in an hour.

12. The word 'bdellium' occurs only twice in the Old Testament: here, and in the book of Numbers, where you are told the manna was of the colour or look of bdellium. There, the Septuagint uses for it the word κρύσταλλος, crystal, or more properly anything congealed by cold; and in the other account of the manna, in Exodus, you are told that, after the dew round the camp was gone up, "there lay a small round thing—as small as the *hoar-frost* upon the ground." Until I heard from my friend Mr. Tyrrwhitt* of the cold felt at night in camping on Sinai, I could not understand how deep the feeling of the Arab, no less than the Greek, must have been respecting the divine gift of the dew, —nor with what sense of thankfulness for miraculous blessing the question of Job would be uttered, "The hoary frost of heaven, who hath gendered it?" Then compare the first words of the blessing of Isaac: "God give thee of the dew of heaven, and of the fatness of earth;" and, again, the first words of the song of Moses: "Give ear, oh ye heavens,—for my speech shall distil as the dew;" and you will see at once why this heavenly food was made to shine clear in the desert, like an enduring of its dew;—Divine remaining for continual need. Frozen, as the Alpine snow—pure for ever.

13. Seize firmly that first idea of the manna, as the type of the bread which is the Word of God;† and then look on

* See some admirable sketches of travelling in the Peninsula of Sinai, by this writer, in 'Vacation Tourists,' Macmillan, 1864. "I still remember," he adds in a private letter to me, "that the frozen towels stood on their edges as stiff as biscuits. By 11 A.M. the thermometer had risen to 85°, and was still rising."

† Sir Philip Sidney, in his translation of the ἄρτον οὐρανοῦ of the 105th Psalm, completes the entire range of idea,

> "Himself, from skies, their hunger to repel,
> *Candies* the grasse with sweete congealed dew."

for the English word 'crystal' in Job, of Wisdom, "It cannot be valued with the gold of Ophir, with the precious *onyx*, or the sapphire: the *gold and the crystal* shall not equal it, neither shall it be valued with pure gold;" in Ezekiel, "firmament of the terrible crystal," or in the Apocalypse, "A sea of glass, like unto crystal,—water of life, clear as crystal,"—"light of the city like a stone most precious, even like a jasper stone, clear as crystal." Your understanding the true meaning of all these passages depends on your distinct conception of the permanent clearness and hardness of the Rock-crystal. You may trust me to tell you quickly, in this matter, what you may all for yourselves discover if you will read.

14. The three substances named here in the first account of Paradise, stand generally as types—the GOLD of all precious metals; the CRYSTAL of all clear precious stones prized for *lustre;* the ONYX of all opaque precious stones prized for *colour*. And to mark this distinction as a vital one,—in each case when the stones to be set for the tabernacle-service are named, the onyx is named separately. The Jewish rulers brought "onyx stones, and stones to be set for the ephod, and for the breastplate."* And the onyx is used thrice, while every other stone is used only once, in the High Priest's robe; two onyxes on the shoulders, bearing the twelve names of the tribes, six on each stone, (Exod. xxviii. 9, 10,) and one in the breast-plate, with its separate name of one tribe, (Exod. xxviii. 20.)

15. A. Now note the importance of this grouping. The Gold, or precious metal, is significant of all that the power of the beautiful earth, gold, and of the strong earth, iron, has done for and against man. How much evil I need not say. How much good is a question I will endeavour to show some evidence on forthwith.

B. The Crystal is significant of all the power that jewels, from diamonds down through every Indian gem to the glass beads which we now make for ball-dresses, have had over the imagination and economy of men and women—from the day

* Exod. xxv. 7, xxxv. 27, comparing Job above quoted, and Ezekiel xxviii. 13.

that Adam drank of the water of the crystal river to this hour. How much evil that is, you partially know; how much good, we have to consider.

c. The Onyx is the type of all stones arranged in bands of different colours; it means primarily, nail-stone—showing a separation like the white half-crescent at the root of the finger-nail; not without some idea of its subjection to laws of life. Of these stones, part, which are flinty, are the material used for cameos and all manner of engraved work and pietra dura; but in the great idea of banded or belted stones, they include the whole range of marble, and especially alabaster, giving the name to the alabastra, or vases used especially for the containing of precious unguents, themselves more precious;* so that this stone, as best representative of all others, is chosen to be the last gift of men to Christ, as gold is their first; incense with both: at His birth, gold and frankincense; at His death, alabaster and spikenard.

16. The two sources of the material wealth of all nations were thus offered to the King of men in their simplicity. But their power among civilized nations has been owing to their workmanship. And if we are to ask whether the gold and the stones are to be holy, much more have we to ask if the worker in gold, and the worker in stone, are to be conceived as exercising holy function.

17. Now, as we ask of a stone, to know what it is, what it can do, or suffer, so of a human creature, to know what it is, we ask what it can do, or suffer.

So that we have two scientific questions put to us, in this matter: how the stones came to be what *they* are—or the law of Crystallization; and how the jewellers came to be what *they* are—or the law of Inspiration. You see how vital this question is to me, beginning now actually to give my laws of Florentine art in English Schools! How can artists be made artists,—in gold and in precious stones? whether in the desert, or the city?—and if in the city, whether, as at Jerusalem, so also in Florence, Paris, or London?

* Compare the "Nardi parvos onyx," which was to be Virgil's feast-gift, in spring, to Horace.

Must we at this present time, think you, order the jewellers, whom we wish to teach, merely to study and copy the best results of past fashion? or are we to hope that some day or other, if we behave rightly, and take care of our jewels properly, we shall be shown also how to set them; and that, merely substituting modern names for ancient ones, some divine message will come to our craftsmen, such as this: 'See, I have called by name Messrs. Hunt and Roskell, and Messrs. London and Ryder, and I have filled them with the Spirit of God, in wisdom and in understanding, and in all manner of workmanship, to work in gold, and in silver, and in brass, and in cutting of stones'?

18. This sentence, which, I suppose, becomes startling to your ear in the substitution of modern for ancient names, is the first, so far as I know, distinctly referring to the ancient methods of instruction in the art of jewellery. So also the words which I have chosen for the title (or, as perhaps some of my audience may regretfully think it should be called, the text,) of my lecture, are the first I know that give any account of the formation or existence of jewels. So that the same tradition, whatever its value, which gave us the commands we profess to obey for our moral law, implies also the necessity of inspired instruction for the proper practice of the art of jewellery; and connects the richness of the earth in gold and jewels with the pleasure of Heaven that we should use them under its direction. The scientific mind will of course draw back in scorn from the idea of such possibility; but then, the scientific mind can neither design, itself, nor perceive the power of design in others. And practically you will find that all noble design in jewellery whatsoever, from the beginning of the world till now, has been either instinctive,—done, that is to say, by tutorship of nature, with the innocent felicity and security of purely animal art,—Etruscan, Irish, Indian, or Peruvian gold being interwoven with a fine and unerring grace of industry, like the touch of the bee on its cell and of the bird on her nest,—or else, has been wrought into its finer forms, under the impulse of religion in sacred service, in crosier, chalice, and lamp; and that the best beauty of its

profane service has been debased from these. And the three greatest masters of design in jewellery, the 'facile principes' of the entire European School, are—centrally, the one who definitely worked always with appeal for inspiration—Angelico of Fésole ; and on each side of him, the two most earnest reformers of the morals of the Christian Church—Holbein and Sandro Botticelli.

19. I have first answered this, the most close home of the questions,—how men come to be jewellers. Next, how do stones come to be jewels? It seems that by all religious, no less than all profane, teaching or tradition, these substances are asserted to be precious,—useful to man, and sacred to God. Whether we have not made them deadly instead of useful, and sacrificed them to devils instead of God,—you may consider at another time. To-night, I would examine only a little way the methods in which they are prepared by nature, for such service as they are capable of.

20. There are three great laws by which they, and the metals they are to be set in, are prepared for us ; and at present all these are mysteries to us.

I. The first, the mystery by which "surely there is a vein for the silver, and a place for the gold whence * they fine it." No geologist, no scientific person whatsoever, can tell you how this gold under my hand was brought into this cleft in the bdellium ;† no one knows where it was before, or how it got here : one thing only seems to be manifest—that it was not here always. This white bdellium itself closes rents, and fills hollows, in rocks which had to be rent before they could be rejoined, and hollowed before they could be refilled. But no one hitherto has been able to say where the gold first was, or by what process it came into this its resting-place. First mystery, then,—that there is a vein for the silver and a place for the gold.

II. The second mystery is that of crystallization ; by which, obeying laws no less arbitrary than those by which the bee builds her cell—the water produced by the sweet miracles of

* 'Whence,' not 'where,' they sift or wash it : ὅθεν διηθεῖται, LXX.

† 20. A. 1. Sheffield Museum.

cloud and spring freezes into the hexagonal stars of the hoar-frost;—the flint, which can be melted and diffused like water, freezes also, like water, into *these* hexagonal towers of everlasting ice;* and the clay, which can be dashed on the potter's wheel as it pleaseth the potter to make it, can be frozen by the touch of Heaven into the hexagonal star of Heaven's own colour—the sapphire.

III. The third mystery, the gathering of crystals themselves into ranks or bands, by which Scotch pebbles are made, not only is at present unpierced, but—which is a wonderful thing in the present century—it is even untalked about. There has been much discussion as to the nature of metallic veins; and books have been written with indefatigable industry, and splendid accumulation of facts, on the limits, though never on the methods, of crystallization. But of the structure of banded stones not a word is ever said, and, popularly, less than nothing known; there being many very false notions current respecting them, in the minds even of good mineralogists.

And the basis of what I find to be ascertainable about them, may be told with small stress to your patience.

21. I have here in my hand,† a pebble which used to decorate the chimney-piece of the children's playroom in my aunt's house at Perth, when I was seven years old, just half a century ago; which pebble having come out of the hill of Kinnoull, on the other side of the Tay, I show you because I know so well where it came from, and can therefore answer for its originality and genuineness.

22. The hill of Kinnoull, like all the characteristic crags or craigs of central Scotland, is of a basaltic lava—in which, however, more specially than in most others, these balls of pebble form themselves. And of these, in their first and simplest state, you may think as little pieces of flint jelly, filling the pores or cavities of the rock.

Without insisting too strictly on the analogy—for Nature is so various in her operations that you are sure to be de-

* I. Q. 11. Sheffield Museum.

† I. A. 8. Sheffield Museum.

ceived if you ever think one process has been in all respects like another—you may yet in most respects think of the whole substance of the rock as a kind of brown bread, volcanically baked, the pores and cavities of which, when it has risen, are filled with agate or onyx jelly, as the similar pores of a slice of quartern loaf are filled with butter, if the cook has spread it in a hurry.

23. I use this simile with more satisfaction, because, in the course of last autumn, I was making some practical experiments on glacial motion—the substances for experiment being supplied to me in any degree of congelation or regelation which might be required, by the perfectly angelic cook of a country friend, who not only gave me the run of her kitchen, but allowed me to make domical mountains of her best dish-covers, and tortuous valleys of her finest napkins;—under which altogether favourable conditions, and being besides supplied with any quality of ice-cream and blancmange, in every state of frost and thaw, I got more beautiful results, both respecting glacier motion, and interstratified rocks, than a year's work would have reached by unculinary analysis. Keeping, however—as I must to-night—to our present question, I have here a piece of this baked volcanic rock, which is as full of agate pebbles as a plum-pudding is of currants; each of these agate pebbles consisting of a clear green chalcedony, with balls of banded agate formed in the midst, or at the sides of them. This diagram * represents one enlarged.

And you have there one white ball of agate, floating apparently in the green pool, and a larger ball, which is cut through by the section of the stone, and shows you the banded structure in the most exquisite precision.

24. Now, there is no doubt as to the possible formation of these balls in melted vitreous substance as it cools, because we get them in glass itself, when gradually cooled in old glass-houses; and there is no more difficulty in accounting for the formation of round agate balls of this character than for that of common globular chalcedony. But the difficulty begins when the jelly is not allowed to remain quiet, but can

* This drawing is in Sheffield Museum.

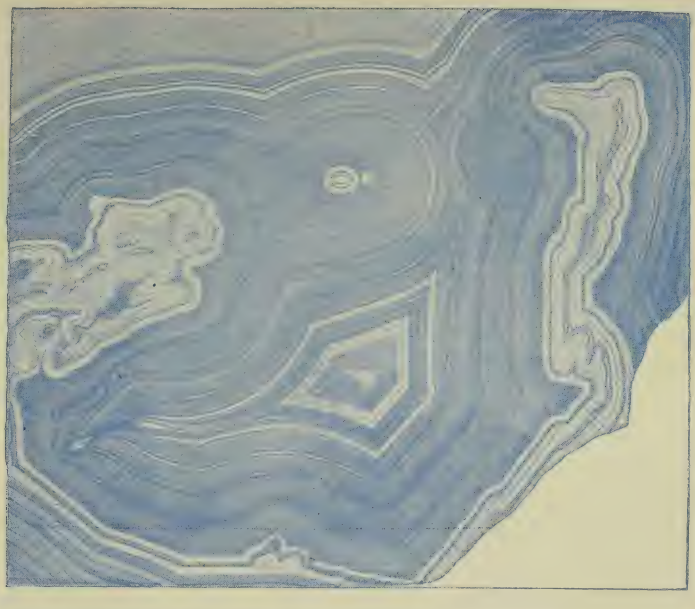




PLATE III.—MURAL AGATES.

run about while it is crystallizing. Then you get glutinous forms that choke cavities in the rock, in which the chalcedony slowly runs down the sides, and forms a level lake at the bottom; and sometimes you get the whole cavity filled with lake poured over lake, the liquid one over the frozen, floor and walls at last encrusted with onyx fit for kings' signets.*

25. Of the methods of engraving this stone, and of its general uses and values in ancient and modern days, you will find all that can interest you, admirably told by Mr. King, in his book on precious stones and gems, to which I owe most of the little I know myself on this subject.

To-night, I would only once more direct your attention to that special use of it in the dress of the Jewish High Priest; that while, as one of the twelve stones of the breastplate, it was engraved like the rest with the name of a single tribe, two larger onyxes were used for the shoulder-studs of the ephod; and on these, the names of all the twelve tribes were engraved, six upon each. I do not infer from this use of the onyx, however, any pre-eminence of value, or isolation of symbolism, in the stone; I suppose it to have been set apart for the more laborious piece of engraving, simply because larger surfaces of it were attainable than of true gems, and its substance was more easily cut. I suppose the bearing of the names on the shoulder to be symbolical of the priest's sacrificial office in bearing the guilt and pain of the people; while the bearing of them on the breast was symbolical of his pastoral office in teaching them: but, except in the broad distinction between gem and onyx, it is impossible now to state with any certainty the nature or meaning of the stones, confused as they have been by the most fantastic speculation of vain Jewish writers themselves.

There is no such difficulty when we pass to the inquiry as to the use of these stones in Christian Heraldry, on the breastplate and shield of the Knight; for that use is founded on natural relations of colour, which cannot be changed, and which will become of more and more importance to mankind

* I am obliged to omit here the part of the lecture referring to diagrams. It will be given in greater detail in the subsequent text.

in proportion to the degree in which Christian Knighthood, once proudly faithful to Death, in War, becomes humbly faithful to Life, in Peace.

26. To these natural relations of colour, the human sight, in health, is joyfully sensitive, as the ear is to the harmonies of sound; but what healthy sight is, you may well suppose, I have not time to define to-night;—the nervous power of the eye, and its delight in the pure hues of colour presented either by the opal, or by wild flowers, being dependent on the perfect purity of the blood supplied to the brain, as well as on the entire soundness of the nervous tissue to which that blood is supplied. And how much is required, through the thoughts and conduct of generations, to make the new blood of our race of children pure—it is for your physicians to tell you, when they have themselves discovered this medicinal truth, that the divine laws of the life of Men cannot be learned in the pain and death of Brutes.

27. The natural and unchangeable system of visible colour has been lately confused, in the minds of all students, partly by the pedantry of unnecessary science; partly by the formalism of illiberal art: for all practical service, it may be stated in a very few words, and expressed in a very simple diagram.

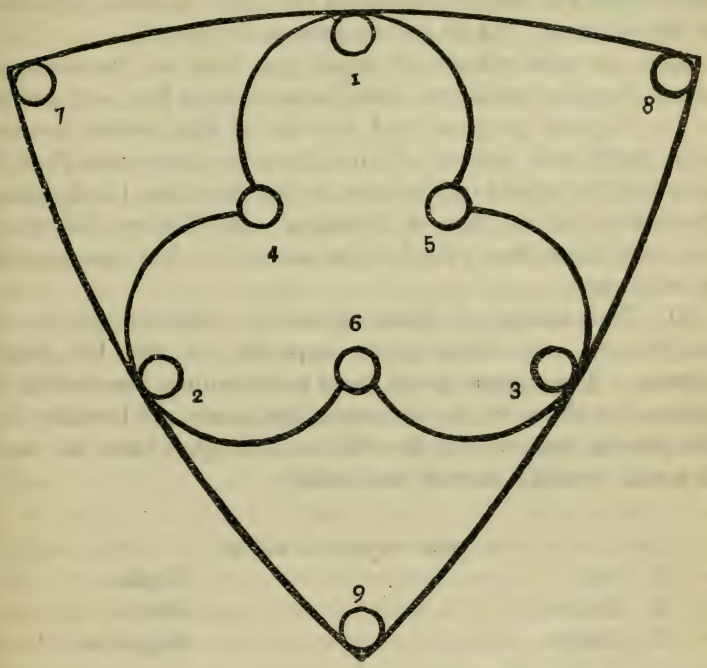
28. There are three primary colours, Red, Blue, and Yellow; three secondary, formed by the union of any two of these; and one tertiary, formed by the union of all three.

If we admitted, as separate colours, the different tints produced by varying proportions of the composing tints, there would of course be an infinite number of secondaries, and a wider infinitude of tertiaries. But tints can be systematically arranged only by the elements of them, not the proportions of those elements. Green is only green, whether there be less or more of blue in it; purple only purple, whether there be less or more of red in it; scarlet only scarlet, whether there be less or more of yellow in it; and the tertiary gray only gray, in whatever proportions the three primaries are combined in it.

29. The diagram used in my drawing schools to express

the system of these colours will be found coloured in the 'Laws of Fésole':—this figure will serve our present purpose.*

The simple trefoil produced by segments of three circles in contact, is inscribed in a curvilinear equilateral triangle. Nine small circles are set,—three in the extremities of the foils, three on their cusps, three in the angles of the triangle.



The circles numbered 1 to 3 are coloured with the primitive colours; 4 to 6, with the secondaries; 7 with white; 8 with black; and the 9th, with the tertiary, gray.

30. All the primary and secondary colours are capable of

* Readers interested in this subject are sure to be able to enlarge and colour it for themselves. I take no notice of the new scientific theories of primary colour: because they are entirely false as applied to practical work, natural or artistic. Golden light in blue sky makes green sky; but green sky and red clouds can't make yellow sky.

infinitely various degrees of intensity or depression : they pass through every degree of increasing light, to perfect light, or white ; and of increasing shade, to perfect absence of light, or black. And these are essential in the harmony required by sight ; so that no group of colours can be perfect that has not white in it, nor any that has not black ; or else the abatement or modesty of them, in the tertiary, gray. So that these three form the limiting angles of the field, or cloudy ground of the rainbow. "I do set my bow in the cloud."

And the nine colours of which you here see the essential group, have, as you know, been the messenger Iris ; exponents of the highest purpose, and records of the perfect household purity and honour of men, from the days when Hesiod blazoned the shield of Heracles, to the day when the fighting Temeraire led the line at Trafalgar,—the Victory following her, with three flags nailed to her masts, for fear one should be shot away.

31. The names of these colours in ordinary shields of knighthood, are those given opposite, in the left hand column. The names given them in blazoning the shields of nobles, are those of the correspondent gems : of heraldry by the planets, reserved for the shields of kings, I have no time to speak, to-night, except incidentally.

A. THE PRIMARY COLOURS.

1.	Or.	Topaz.
2.	Gules.	Ruby.
3.	Azure.	Sapphire.

B. THE SECONDARY COLOURS.

4.	Écarlate.	Jasper.
5.	Vert.	Emerald.
6.	Purpure.	Hyacinth.

C. THE TERTIARY COLOURS.

7.	Argent.	Carbuncle.
8.	Sable.	Diamond.
9.	Colombin.	Pearl.

32. I. Or. Stands between the light and darkness; as the sun, who "rejoiceth as a strong man to run his course," between the morning and the evening. Its heraldic name, in the shields of kings, is Sol: the Sun, or Sun of Justice; and it stands for the strength and honour of all men who run their race in noble work; whose path "is as the shining light, that shineth more and more unto the perfect day."

For theirs are the works which are to shine before men, that they may glorify our Father. And they are also to shine before God, so that with respect to them, what was written of St. Bernard may be always true: "Opera sancti patris velut Sol in conspectu Dei."

For indeed they are a true light of the world, infinitely more good, in the sight of its Creator, than the dead flame of its sunshine; and the discovery of modern science, that all mortal strength is from the sun, which has thrown irrational persons into stupid atheism, as if there was no God but the sun, is indeed the accurate physical expression of this truth, that men, rightly active, are living sunshine.

II. Gules, (rose colour,) from the Persian word 'gul,' for the rose. It is the exactly central hue between the dark red, and pale red, or wild-rose. It is the colour of love, the fulfilment of the joy and of the love of life upon the earth. And it is doubly marked for this symbol. We saw earlier, how the vase given by the Madelaine was precious in its matêrial; but it was also to be indicated as precious in its form. It is not only the substance, but the form of the Greek urn, which gives it nobleness; and these vases for precious perfume were tall, and shaped like the bud of the rose. So that the rose-bud itself, being a vase filled with perfume, is called also 'alabastron'; and Pliny uses that word for it in describing the growth of the rose.

The stone of it is the Ruby.

III. Azure. The colour of the blue sky in the height of it, at noon;—type of the fulfilment of all joy and love in heaven, as the rose-colour, of the fulfilment of all joy and love in earth. And the stone of this is the Sapphire; and because the loves of Earth and Heaven are in truth one, the ruby and sapphire are

indeed the same stone; and they are coloured as if by enchantment,—how, or with what, no chemist has yet shown,—the one azure, and the other rose.

And now you will understand why, in the vision of the Lord of Life to the Elders of Israel, of which it is written, "Also they saw God, and did eat and drink," you are told, "Under His feet was a plinth of sapphire, and, as it were, the body of Heaven in its clearness."

IV. Écarlate (scarlet). I use the French word, because all other heraldic words for colours are Norman-French. The ordinary heraldic term here is 'tenné' (tawny); for the later heralds confused scarlet with gules; but the colour first meant was the sacred hue of human flesh—Carnation;—*in*-carnation: the colour of the body of man in its beauty; of the maid's scarlet blush in noble love; of the youth's scarlet glow in noble war: the dye of the earth into which heaven has breathed its spirit:—incarnate strength—incarnate modesty.

The stone of it is the Jasper, which, as we shall see, is coloured with the same iron that colours the human blood; and thus you can understand why on the throne, in the vision of the returning Christ, "He that sat was to look upon like a jasper and a sardine stone."

V. Vert, (viridis,) from the same root as the words 'virtue,' and 'virgin,'—the colour of the green rod in budding spring; the noble life of youth, born in the *spirit*,—as the scarlet means, the life of noble youth, in *flesh*.* It is seen most perfectly in clear air after the sun has set,—the blue of the upper sky brightening down into it. It is the true colour of the eyes of Athena,—Athena Γλαυκῶπις,† looking from the west.

* Therefore, the Spirit of Beatrice is dressed in green, over *scarlet*, (not rose;—observe this specially).

> "Sovra candido vel, cinta d' oliva
> Donna m' apparve sotto verde manto,
> Vestita di color di *fiamma* viva."

† Accurately described by Pausanias, 1, xiv., as of the colour of a green lake, from the Tritonian pool; compare again the eyes of Beatrice.

The stone of it is the Emerald ; and I must stay for a moment to tell you the derivation of that word.

Anciently, it did not mean our emerald, but a massive green marble, veined apparently by being rent asunder, and called, therefore, the Rent or Torn Rock.

Now, in the central war of Athena with the Giants, the sign of her victory was that the earth was rent, the power of it torn, and graves of it opened. We know this is written for the sign of a greater victory than hers. And the word which Hesiod uses—the oldest describer of this battle—is twice over the same: the sea roared, the heavens thundered, the earth cried out in being rent, ἐσμαράγησε. From that word you have "the rent rock,"—in Latin, smaragdus ; in Latin dialect, smaraudus—softened into emeraudu, emeraude, emerald. And now you see why "there was a rainbow round about the throne in sight like unto an emerald."

VI. Purpure. The true purple of the Tabernacle, "blue, purple, and scarlet"—the kingly colour, retained afterwards in all manuscripts of the Greek Gospels ; therefore known to us absolutely by its constant use in illumination. It is rose colour darkened or saddened with blue ; the colour of love in noble or divine sorrow; borne by the kings, whose witness is in heaven, and their labour on the earth. Its stone is the Jacinth, Hyacinth, or Amethyst,—"like to that sable flower inscribed with woe."

In these six colours, then, you have the rainbow, or angelic iris, of the light and covenant of life.

But the law of the covenant is, "I do set my bow in the cloud, on the shadow of death—and the ordinance of it."

And as here, central, is the sun in his strength, so in the heraldry of our faith, the morning and the evening are the first day,—and the last.

VII. Argent. Silver, or snow-colour ; of the hoar-frost on the earth, or the star of the morning.

I was long hindered from understanding the entire group of heraldic colours, because of the mistake in our use of the word 'carbuncle.' It is not the garnet, but the same stone as the ruby and sapphire—only crystallized white, instead of

red or blue. It is the white sapphire, showing the hexagonal star of its crystallization perfectly; and therefore it becomes an heraldic bearing as a star.

And it is the personal bearing of that Geoffrey Plantagenet, who married Maud the Empress, and became the sire of the lords of England, in her glorious time.

VIII. Sable, (sable, sabulum,) the colour of sand of the great hour-glass of the world, outshaken. Its stone is the diamond —never yet, so far as I know, found but in the sand.* It is the symbol at once of dissolution, and of endurance: darkness changing into light—the adamant of the grave.

IX. Gray. (When deep, the second violet, giving Dante's full chord of the seven colours). The abatement of the light, the abatement of the darkness. Patience, between this which recedes and that which advances; the colour of the turtle-dove, with the message that the waters are abated; the colour of the sacrifice of the poor,—therefore of humility. Its stone is the Pearl; in Norman heraldry the Marguerite—the lowest on the shield, yet of great price; and because, through this virtue, open first the gates of Paradise, you are told that while the building of the walls of it was of jasper, every several gate was of one pearl.

33. You hear me tell you thus positively,—and without qualification or hesitation,—what these things mean. But mind, I tell you so, after thirty years' work, and that directed wholly to the one end of finding out the truth, whether it was pretty or ugly to look in face of. During which labour I have found that the ultimate truth, the central truth, is always pretty; but there is a superficial truth, or half-way truth, which may be very ugly; and which the earnest and faithful worker has to face and fight, and pass over the body of,—feeling it to be his enemy; but which a careless seeker may be stopped by, and a misbelieving seeker will be delighted by, and stay with gladly.

34. When I first gave this lecture, you will find the only reports of it in the papers, with which any pains had been taken, were endeavours to make you disbelieve it, or misbe-

* Or in rock virtually composed of it.

lieve it,—that is to say, to make 'meseroyants' or 'miscreants' of you.

And among the most earnest of these, was a really industrious essay in the 'Daily Telegraph,'—showing evidence that the writer had perseveringly gone to the Heralds' Office and British Museum to read for the occasion; and, I think, deserving of serious notice because we really owe to the proprietors of that journal (who supplied the most earnest of our recent investigators with funds for his Assyrian excavations) the most important heraldic discoveries of the generations of Noah and Nimrod, that had been made since printing took the place of cuneiform inscription.

I pay, therefore, so much respect to the archæologians of Fleet Street as to notice the results of their suddenly stimulated investigations in heraldry.

35. "The lecturer appeared to have forgotten," they said, "that every nation had its own code of symbols, and that gules, or red, is denominated by the French heralds gueules, and is derived by the best French philologers from the Latin 'gula,' the gullet of a beast of prey."

It is perfectly true that the best French philologists do give this derivation; but it is also unfortunately true that the best French philologists are not heralds; and what is more, and worse, all modern heraldry whatsoever is, to the old science, just what the poor gipsy Hayraddin, in 'Quentin Durward,' is to Toison d'Or. But, so far from having 'forgotten,' as the writer for the press supposes I had, that there were knights of France, and Venice, and Florence, as well as England, it so happens that my first studies in heraldry were in *this* manuscript, which is the lesson-book of heraldry written for the young Archduke Charles of Austria; and in *this* one, which is a psalter written in the monastery of the Saint Chapelle for St. Louis, King of France; and on the upper page of which, here framed,* you will see written, in letters of gold, the record of the death of his mother, Blanche of Castile, on the 27th of November, next after St. Geneviève's day; and on the under

* The books referred to, in my rooms at Oxford, are always accessible for examination.

page, between the last lines of the Athanasian Creed, her bearing, the Castilian tower, alternating with the king's,—Azure, semé de France.

36. With this and other such surer authority than was open to the investigation of the press-writer, I will clear up for you his point about the word 'gules.' But I must go a long way back first. I do not know if, in reading the account of the pitching of the standards of the princes of Israel round the Tabernacle, you have ever been brought to pause by the singular covering given to the Tabernacle itself,—rams' skins, dyed red, and *badgers'* skins. Of rams' skins, of course, any quantity could be had from the flocks, but of badgers', the supply must have been difficult!

And you will find, on looking into the matter, that the so-called badgers' skins were indeed those which young ladies are very glad to dress in at the present day,—sealskins; and that the meaning of their use in the Tabernacle was, that it might be adorned with the useful service of the *flocks* of the earth and sea: the multitude of the seals then in the Mediterranean being indicated to you both by the name and coinage of the city Phocæa; and by the attribution of them, to the God Proteus, in the first book of the Odyssey, under the precise term of flocks, to be counted by him as their shepherd.

37. From the days of Moses and of Homer to our own, the traffic in these precious wools and furs, in the Cashmere wool, and the fur, after the seal disappeared, of the grey ermine, (becoming white in the Siberian winter,) has continued: and in the days of chivalry became of immense importance; because the mantle, and the collar fastening close about the neck, were at once the most useful and the most splendid piece of dress of the warrior nations, who rode and slept in roughest weather, and in open field. Now, these rams' skins, or fleeces, dyed of precious red, were continually called by their Eastern merchants 'the red things,' from the Zoroastrian word 'gul,'—taking the place of the scarlet Chlamydes, which were among the richest wealth of old Rome. The Latin knights could only render the eastern word 'gul' by gula; and so in St. Bernard's red-hot denunciation of these

proud red dresses, he numbers chiefly among them the little red-dyed skins,—pelliculas rubricatas,—which they call gulæ: "Quas gulas vocant." These red furs, for wrist and neck, were afterwards supposed by bad Latinists to be called 'gulæ,' as *throat*-pieces. St. Bernard specifies them, also, in that office: "Even some of the clergy," he says, "have the red skins of weasels hanging from their necks—dependentes a collo"; this vulgar interpretation of gula became more commonly accepted, as intercourse with the East, and chivalric heraldry, diminished; and the modern philologist finally jumps fairly down the lion's throat, and supposes that the Tyrian purple, which had been the pride of all the Emperors of East and West, was named from a wild beast's gullet!

38. I do not hold for a mischance, or even for a chance at all, that this particular error should have been unearthed by the hasty studies of the Daily Telegraph. It is a mistake entirely characteristic of the results of vulgar modern analysis; and I have exposed it in detail, that I might very solemnly warn you of the impossibility of arriving at any just conclusions respecting ancient classical languages, of which this heraldry is among the noblest, unless we take pains first to render ourselves *capable of the ideas* which such languages convey. It is perfectly true that every great symbol, as it has, on one side a meaning of comfort, has on the other one of terror; and if to noble persons it speaks of noble things, to ignoble persons it will as necessarily speak of ignoble ones. Not under one only, but under all, of these heraldic symbols, as there is, for thoughtful and noble persons, the spiritual sense, so for thoughtless and sensual persons, there is the sensual one; and *can* be no other. Every word has only the meaning which its hearer can receive; you cannot express honour to the shameless, nor love to the unloving. Nay, gradually you may fall to the level of having words no more, either for honour or for love:

"There are whole nations," says Mr. Farrar, in his excellent little book on the families of speech, "people whom no nation now acknowledges as its kinsmen, whese languages, rich in words for all that can be eaten or handled, seem absolutely

incapable of expressing the reflex conceptions of the intellect, or the higher forms of the consciousness; whose life seems confined to a gratification of animal wants, with no hope in the future, and no pride in the past. They are for the most part peoples without a literature, and without a history;—peoples whose tongues in some instances have twenty names for murder, but no name for love, no name for gratitude, no name for God."

39. The English nation, under the teaching of modern economists, is rapidly becoming one of this kind, which, deliberately living, not in love of God or man, but in defiance of God, and hatred of man, will no longer have in its heraldry, gules as the colour of love; but gules only as the colour of the throat of a wild beast. That will be the only part of the British lion symbolized by the British flag;—not the lion heart any more, but only the lion gullet.

And if you choose to interpret your heraldry in that modern fashion, there are volumes of instruction open for you everywhere. Yellow shall be to you the colour of treachery, instead of sunshine; green, the colour of putrefaction, instead of strength; blue, the colour of sulphurous hell-fire, instead of sun-lit heaven; and scarlet, the colour of the harlot of Babylon, instead of the Virgin of God. All these are legitimate readings,—nay, inevitable readings. I said wrongly just now that you might choose what the symbols shall be to you. Even if you would, you cannot choose. They can only reflect to you what you have made your own mind, and can only herald to you what you have determined for your own fate.

40. And now, with safe understanding of the meaning of purple, I can show you the purple and dove-colour of St. Mark's, once itself a sea-borne vase of alabaster full of incense of prayers; and a purple manuscript,—floor, walls and roof blazoned with the scrolls of the gospel.

They have been made a den of thieves, and these stones of Venice here in my hand * are rags of the sacred robes of her

* Portions of the alabaster of St. Mark's torn away for recent restorations. The destruction of the floor of the church, to give work to modern mosaic mongers, has been going on for years. I cannot bear

Church, sold, and mocked like her Master. They have parted her garments, and cast lots upon her vesture.

41. I return to our question at the beginning: Are we right in setting our hearts on these stones,—loving them, holding them precious?

Yes, assuredly; provided it is the stone we love, and the stone we think precious; and not ourselves we love, and ourselves we think precious. To worship a black stone, because it fell from heaven, may not be wholly wise, but it is half-way to being wise; half-way to worship of heaven itself. Or, to worship a white stone because it is dug with difficulty out of the earth, and to put it into a log of wood, and say the wood sees with it, may not be wholly wise; but it is half-way to being wise; half-way to believing that the God who makes earth so bright, may also brighten the eyes of the blind. It is no true folly to think that stones see, but it *is*, to think that eyes do not; it is no true folly to think that stones live, but it *is*, to think that souls die; it is no true folly to believe that, in the day of the making up of jewels, the palace walls shall be compact of life above their corner-stone,—but it *is*, to believe that in the day of dissolution the souls of the globe shall be shattered with its emerald; and no spirit survive, unterrified, above the ruin.

42. Yes, pretty ladies! love the stones, and take care of them; but love your own souls better, and take care of *them*, for the day when the Master shall make up His jewels. See that it be first the precious stones of the breastplate of justice you delight in, and are brave in; not first the stones, of your own diamond necklaces * you delight in, and are fearful for,

the pain of describing the facts of it, and must leave the part of the lecture referring to the colour of the marbles to be given farther on, in connection with some extracts from my 'Stones of Venice.' The superb drawing, by Mr. Bunney, of the north portico, which illustrated them, together with the alabasters themselves, will be placed in the Sheffield Museum.

* Do you think there was no meaning of fate in that omen of the diamond necklace; at the end of the days of queenly pride;—omen of another line, of scarlet, on many a fair neck? It was a foul story, you

lest perchance the lady's maid miss that box at the station. Get your breastplate of truth first, and every earthly stone will shine in it.

Alas! most of you know no more what justice means, than what jewels mean; but here is the pure practice of it to be begun, if you will, to-morrow.

43. For literal truth of your jewels themselves, absolutely search out and cast away all manner of false, or dyed, or altered stones. And at present, to make quite sure, wear your jewels uncut: they will be twenty times more interesting to you, so. The ruby in the British crown is uncut; and is, as far as my knowledge extends,—I have not had it to look at close,—the loveliest precious stone in the world. And, as a piece of true gentlewoman's and true lady's knowledge, learn to know these stones when you see them, uncut. So much of mineralogy the abundance of modern science may, I think, spare, as a piece of required education for the upper classes.

44. Then, when you know them, and their shapes, get your highest artists to design the setting of them. Holbein, Botticelli, or Angelico, will always be ready to design a brooch for you. Then you will begin to think how to get your Holbein and Botticelli, which will lead to many other wholesome thoughts.

45. And lastly, as you are true in the choosing, be just in the sharing, of your jewels. They are but dross and dust after all; and you, my sweet religious friends, who are so anxious to impart to the poor your pearls of great price, may surely also share with them your pearls of little price. Strangely (to my own mind at least), you are not so zealous in distributing your estimable rubies, as you are in communicating your *in*estimable wisdom. Of the grace of God, which you can give away in the quantity you think others are in

say—slander of the innocent. Yes, undoubtedly, fate meant it to be so. Slander, and lying, and every form of loathsome shame, cast on the innocently fading Royalty. For the corruption of the best is the worst; and these gems, which are given by God to be on the breast of the pure priest, and in the crown of the righteous king, sank into the black gravel of diluvium, under streams of innocent blood.

need of, without losing any yourselves, I observe you to be affectionately lavish; but of the jewels of God, if any suggestions be made by charity touching the distribution of *them*, you are apt, in your wisdom, to make answer like the wise virgins, "Not so, lest there be not enough for us and you."

46. Now, my fair friends, doubtless, if the Tabernacle were to be erected again, in the middle of the Park, you would all be eager to stitch camels' hair for it;—some, to make presents of sealskins to it; and, perhaps, not a few fetch your jewel-cases, offering their contents to the selection of Bezaleel and Aholiab.

But that cannot be, now, with so Crystal-Palace-like entertainment to you. The tabernacle of God is now with men;—*in* men, and women, and sucklings also; which temple ye are, ye and your Christian sisters; of whom the poorest, here in London, are a very undecorated shrine indeed. *They* are the Tabernacle, fair friends, which you have got leave, and charge, to adorn. Not, in anywise, those charming churches and altars which you wreathe with garlands for God's sake, and the eloquent clergyman's. You are quite wrong, and barbarous in language, when you call *them* 'Churches' at all. They are only Synagogues;—the very same of which Christ spoke, with eternal meaning, as the places that hypocrites would love to be seen in. Here, in St. Giles's and the East, sister to that in St. George's, and the West, is the Church! raggedly enough curtained, surely! Let those arches and pillars of Mr. Scott's alone, young ladies: it is *you* whom God likes to see well decorated, not them. Keep your roses for your hair—your embroidery for your petticoats. You are yourselves the Church, dears; and see that you be finally adorned, as women professing godliness, with the precious stones of good works, which may be quite briefly defined, for the present, as decorating the entire Tabernacle; and clothing your poor sisters, with yourselves. Put roses also in *their* hair, put precious stones also on *their* breasts; see that they also are clothed in your purple and scarlet, with other delights; that they also learn to read the gilded heraldry of the sky; and, upon the earth, be taught, not only the labours of it, but the

loveliness. For them, also, let the hereditary jewel recall their father's pride, their mother's beauty: so shall your days, and theirs, be long in the sweet and sacred land which the Lord your God has given you: so, truly, shall THE GOLD OF THAT LAND BE GOOD, AND THERE, ALSO, THE CRYSTAL, AND THE ONYX STONE.

CHAPTER VIII.

THE ALPHABET.

(Chapter written to introduce the preceding Lecture; but transposed, that the Lecture might not be divided between two numbers.)

1. SINCE the last sentence of the preceding number of 'Deucalion' was written, I have been compelled, in preparing for the arrangement of my Sheffield museum, to look with nicety into the present relations of theory to knowledge in geological science; and find, to my no small consternation, that the assertions which I had supposed beyond dispute, made by the geologists of forty years back, respecting the igneous origin of the main crystalline masses of the primary rocks, are now all brought again into question; and that the investigations of many of the most intelligent observers render many former theories, in their generality, more than doubtful. My own studies of rock structure, with reference to landscape, have led me, also, to see the necessity of retreating to and securing the very bases of knowledge in this infinitely difficult science; and I am resolved, therefore, at once to make the series of 'Deucalion' an absolutely trustworthy foundation for the geological teaching in St. George's schools; by first sifting what is really known from what is supposed; and then, out of things known, sifting what may be usefully taught to young people, from the perplexed vanity of prematurely systematic science.

2. I propose, also, in the St. George's Museum at Sheffield

and in any provincial museums hereafter connected with it, to allow space for two arrangements of inorganic substances; one for mineralogists, properly so called, and the general public; the other for chemists, and advanced students in physical science. The mineralogical collection will be fully described and explained in its catalogue, so that very young people may begin their study of it without difficulty, and so chosen and arranged as to be comprehensible by persons who have not the time to make themselves masters of the science of chemistry, but who may desire some accurate acquaintance with the aspect of the principal minerals which compose the world. And I trust, as I said in the preceding lecture, that the day is near when the knowledge of the native forms and aspects of precious stones will be made a necessary part of a lady's education; and knowledge of the nature of the soils, and the building stones, of his native country, a necessary part of a gentleman's.

3. The arrangement of the chemical collection I shall leave to any good chemist who will undertake it; I suppose that now adopted by Mr. Maskelyne for the mineral collection in the British Museum may be considered as permanently authoritative.

But the mineralogical collection I shall arrange myself, as aforesaid, in the manner which I think likely to be clearest for simple persons; omitting many of the rarer elements altogether, in the trust that they will be sufficiently illustrated by the chemical series; and placing the substances most commonly seen in the earth beneath our feet, in an order rather addressed to the convenience of memory than to the symmetries of classification.

4. In the outset, therefore, I shall divide our entire collection into twenty groups, illustrated each by a separately bound portion of catalogue.

These twenty groups will illustrate the native states, and ordinary combinations, of nine solid oxides, one gaseous element (fluorine), and ten solid elements, placed in the following order:—

1. Silica.
2. Oxide of Titanium.
3. Oxide of Iron.
4. Alumina.
5. Potassa.
6. Soda.
7. Magnesia.
8. Calcium.
9. Glucina.
10. Fluorine.
11. Carbon.
12. Sulphur.
13. Phosphorus.
14. Tellurium.
15. Uranium.
16. Tin.
17. Lead.
18. Copper.
19. Silver.
20. Gold.

5. A few words will show the objects proposed by this limited arrangement. The three first oxides are placed in one group, on account of the natural fellowship and constant association of their crystals.

Added to these, the next group of the alkaline earths will constitute one easily memorable group of nine oxides, out of which, broadly and practically, the solid globe of the earth is made, containing in the cracks, rents, or volcanic pits of it, the remaining eleven substances, variously prepared for man's use, torment, or temptation.

6. I put fluorine by itself, on account of its notable importance in natural mineralogy, and especially in that of Cornwall, Derbyshire, and Cumberland: what I have to say of chlorine and iodine will be arranged under the same head; then the triple group of anomalous substances created for ministry by fire, and the seven-fold group of the great metals, complete the list of substances which must be generally known to the

pupils in St. George's schools. The phosphates, sulphates, and carbonates of the earths, will be given with the earths; and those of the metals, under the metals. The carburets, sulphurets, and phosphurets,* under carbon, sulphur, and phosphorus. Under glucina, given representatively, on account of its importance in the emerald, will be given what specimens may be desirable of the minor or auxiliary earths —baryta, strontia, etc.; and under tellurium and uranium, the auxiliary metals—platinum, columbium, etc., naming them thus together, under those themselves named from Tellus and Uranus. With uranium I shall place the cupreous micas, for their similarity of aspect.

7. The minerals referred to in each of these twenty groups will be further divided, under separate letters, into such minor classes as may be convenient, not exceeding twenty: the letters being initial, if possible, of the name of the class; but the letters I and J omitted, that they may not be confused with numerals; and any letter of important sound in the mineral's name substituted for these, or for any other that would come twice over. Then any number of specimens may be catalogued under each letter.

For instance, the siliceous minerals which are the subject of study in the following lecture will be lettered thus:—

A. Agate.
C. Carnelian.
H. Hyalite.
L. Chalcedony.
M. Amethyst.
O. Opal.
Q. Quartz.
S. Jasper.

In which list, M is used that we may not have A repeated, and will yet be sufficiently characteristic of Amethyst; and L, to avoid the repetition of C, may stand for Chalcedony; while

* I reject the modern term 'sulphide' unhesitatingly. It is as barbarous as 'carbide.'

S, being important in the sound of Jasper, will serve instead of excluded J, or pre-engaged A.

The complete label, then, on any (principally) siliceous mineral will be in such form as these following:—

1 A 1, meaning Silica, Agate, No. 1.
1 L 40, " Silica, Chalcedony, No. 40.
1 Q 520, " Silica, Quartz, No. 520.

8. In many of the classes, as in this first one of Silica, we shall not need all our twenty letters; but there will be a letter A to every class, which will contain the examples that explain the relation and connection of the rest. It happens that in Silica, the agates exactly serve this purpose; and therefore may have A for their proper initial letter. But in the case of other minerals, the letter A will not be the initial of the mineral's name, but the indication of its character, as explanatory of the succeeding series.

Thus the specimen of gold, referred to as 20 A 1 in the preceding lecture, is the first of the series exhibiting the general method of the occurrence of native gold in the rocks containing it; and the complete series in the catalogue will be:—

A. Native Gold, in various geological formations.
B. Branched Gold.
C. Crystalline Gold.
D. Dispersed Gold.
G. Granulate Gold.
K. Knitted Gold.
L. Leaf Gold.
M. Mossy Gold.
R. Rolled Gold.

9. It may be at once stated that I shall always retain the word 'branched' for minerals taking either of the forms now called 'arborescent' or 'dendritic.' The advance of education must soon make all students feel the absurdity of using the epithet 'tree-like' in Latin, with a different meaning from

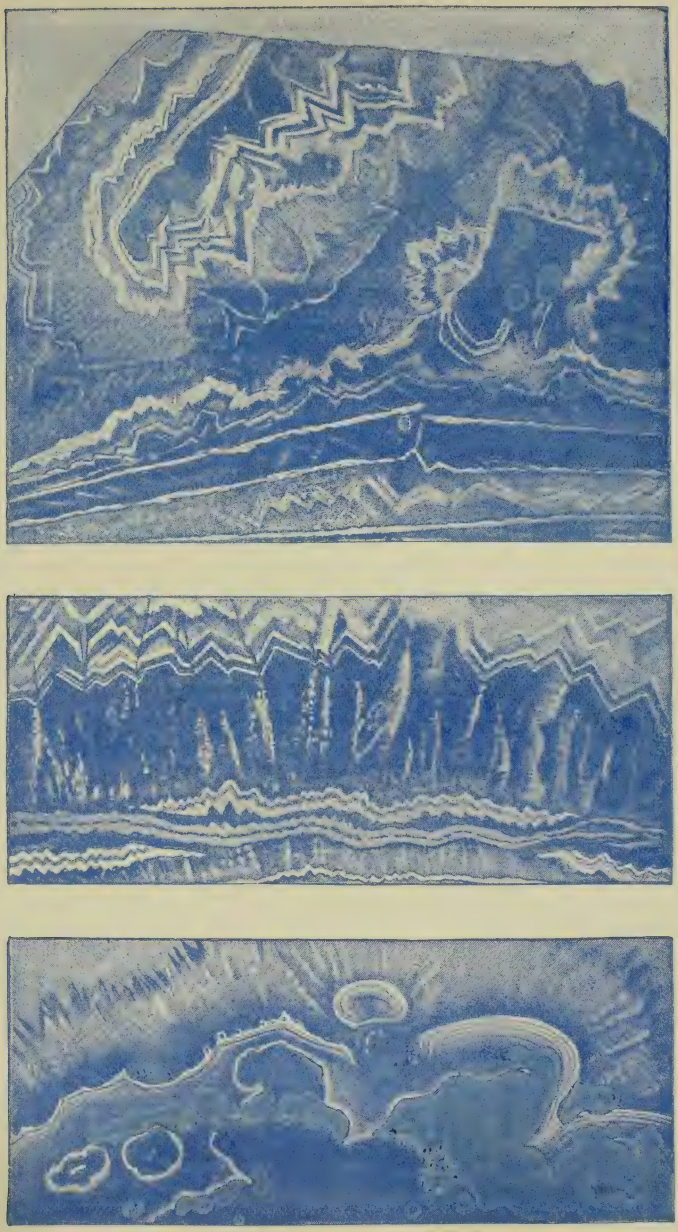


PLATE IV.—AMETHYST—QUARTZ.

With Warped Faults in Concretion.

the epithet 'tree-like' in Greek. My general word 'branched' will include both the so-called 'arborescent' forms (meaning those branched in straight crystals), and the so-called 'dendritic' (branched like the manganese or oxide in Mocha stones;) but with most accurate explanation of the difference; while the term 'spun' will be reserved for the variously thread-like forms, inaccurately now called dendritic, assumed characteristically by native silver and copper.

Of course, thread, branch, leaf, and grain, are all in most cases crystalline, no less definitely than larger crystals; but all my epithets are for practical service, not scientific definition; and I mean by 'crystalline gold' a specimen which distinctly shows octohedric or other specific form; and by 'branched gold' a specimen in which such crystalline forms are either so indistinct or so minute as to be apparently united into groups resembling branches of trees.

10. Every one of the specimens will be chosen for some specialty of character; and the points characteristic of it described in the catalogue; and whatever questions respecting its structure are yet unsolved, and significant, will be submitted in succession, noted each by a Greek letter, so that any given question may be at once referred to. Thus, for instance: question α in example 20 G 1 will be the relation of the subdivided or granular condition of crystalline gold to porous states of the quartz matrix. As the average length of description required by any single specimen, chosen on such principal, ought to be at least half a page of my usual type, the distribution of the catalogue into volumes will not seem unnecessary; especially as in due course of time, I hope that each volume will consist of two parts, the first containing questions submitted, and the second, solutions received.

The geological series will be distinguished by two letters instead of one, the first indicating the principal locality of the formation, or at least that whence it was first named. And I shall distinguish *all* formations by their localities—"M. L., Malham limestone"; "S. S., Skiddaw slate"; etc.,—leaving the geologists to assign systematic or chronological names as they like. What is pliocene to-day may be pleistocene to-

morrow ; and what is triassic in Mr. A.'s system, tesserassic in Mr. B.'s ; but Turin gravels and Warwick sands remain where they used to be, for all that.

These particulars being understood, the lecture which I gave this spring on the general relations of precious minerals to human interests, may most properly introduce us to our detailed and progressive labour ; and two paragraphs of it, incidentally touching upon methods of public instruction, may fitly end the present chapter.

11. In all museums intended for popular teaching, there are two great evils to be avoided. The first is, superabundance ; the second, disorder. The first is having too much of everything. You will find in your own work that the less you have to look at, the better you attend. You can no more see twenty things worth seeing in an hour, than you can read twenty books worth reading in a day. Give little, but that little good and beautiful, and explain it thoroughly. For instance, here in crystal, you may have literally a thousand specimens, every one with something new in it to a mineralogist ; but what is the use of that to a man who has only a quarter of an hour to spare in a week? Here are four pieces—showing it in perfect purity,—with the substances which it is fondest of working with, woven by it into tissues as fine as Penelope's ; and one crystal of it stainless, with the favourite shape it has here in Europe—the so-called 'flute-beak' of Dauphiné,—let a man once understand that crystal, and study the polish of this plane surface, given to it by its own pure growth, and the word 'crystal' will become a miracle to him, and a treasure in his heart for evermore.

12. Not too much, is the first law ; not in disorder, is the second. Any order will do, if it is fixed and intelligible : no system is of use that is disturbed by additions, or difficult to follow ; above all, let all things, for popular use, be *beautifully* exhibited. In our own houses, we may have our drawers and bookcases as rough as we please ; but to teach our people rightly, we must make it a true joy to them to see the pretty things we have to show : and we must let them feel that, although, by poverty, they may be compelled to the pain of labour,

they need not, by poverty, be debarred from the felicity and the brightness of rest; nor see the work of great artists, or of the great powers of nature, disgraced by commonness and vileness in the manner of setting them forth. Stateliness, splendour, and order are above all things needful in places dedicated to the highest labours of thought: what we willingly concede to the Graces of Society, we must reverently offer to the Muses of Seclusion; and out of the millions spent annually to give attractiveness to folly, may spare at least what is necessary to give honour to Instruction.

CHAPTER IX.

FIRE AND WATER.

1. In examining any mineral, I wish my pupils first to be able to ascertain easily what it is; then to be accurately informed of what is *known* respecting the processes of its formation; lastly, to examine, with such precision as their time or instruments may permit, the effects of such formation on the substance. Thus, from almost any piece of rock, in Derbyshire, over which spring water has trickled or dashed for any length of time, they may break with a light blow a piece of brown incrustation, which, with little experience, they may ascertain to be carbonate of lime;—of which they may authoritatively be told that it was formed by slow deposition from the dripping water;—and in which, with little strain of sight, they may observe structural lines, vertical to the surface, which present many analogies with those which may be seen in coats of semi-crystalline quartz, or reniform chalcedony.

2. The more accurate the description they can give of the aspect of the stone, and the more authoritative and sifted the account they can render of the circumstances of its origin, the greater shall I consider their progress, and the more hopeful their scientific disposition.

But I absolutely forbid their proceeding to draw any logical inferences from what they know of stalagmite, to what they

don't know of chalcedony. They are not to indulge either their reason or their imagination in the feeblest flight beyond the verge of actual experience; and they are to quench, as demoniacal temptation, any disposition they find in themselves to suppose that, because stalagmite and chalcedony both show lines of structure vertical to reniform surface, both have been deposited in a similar manner from a current solution. They are to address themselves to the investigation of the chalcedony precisely as if no stalagmite were in existence,—to inquire first what it is; secondly, when and how it is *known to be* formed; and, thirdly, what structure is discernible in it,—leaving to the close of their lives, and of other people's, the collection, from evidence thus securely accumulated, of such general conclusions as may then, without dispute, and without loss of time through prejudice in error, manifest themselves, not as 'theories,' but as demonstrable laws.

When, however, for the secure instruction of my thus restrained and patient pupils, I look, myself, for what is actually told me by eye-witnesses, of the formation of mineral bodies, I find the sources of information so few, the facts so scanty, and the connecting paste, or diluvial detritus, of past guesses, so cumbrously delaying the operation of rational diamond-washing, that I am fain, as the shortest way, to set such of my friends as are minded to help me, to begin again at the very beginning; and *re*assert, for the general good, what their eyes can now see, in what their hands can now handle.

3. And as we have begun with a rolled flint, it seems by special guidance of Fors that the friend who has already first contributed to the art-wealth of the Sheffield Museum, Mr. Henry Willett, is willing also to be the first contributor to its scientific treasuries of fact; and has set himself zealously to collect for us the phenomena observable in the chalk and flint of his neighbourhood.

Of which kindly industry, the following trustworthy notes have been already the result, which, (whether the like observations have been made before or not being quite immaterial to the matter in hand,) are assuredly themselves original and secure: not mere traditional gossip. Before giving them, how-

ever, I will briefly mark their relations to the entire subject of the structure of siliceous minerals.

4. There are a certain number of rocks in the world, which have been seen by human eyes, flowing, white-hot, and watched by human eyes as they cool down. The structure of these rocks is therefore absolutely known to have had something to do with fire.

There are a certain number of other rocks in the world which have been seen by human eyes in a state of wet sand or mud, and which have been watched, as they dried, into substances more or less resembling stone. The structure of these rocks is therefore known to have had something to do with water.

Between these two materials, whose nature is avouched by testimony, there occur an indefinite number of rocks, which no human eyes have ever seen, either hot or muddy; but which nevertheless show curious analogies to the ascertainably cooled substances on the one side and to the ascertainably dried substances on the other. Respecting these medial formations, geologists have disputed in my ears during the half-century of my audient life; (and had been disputing for about a century before I was born,) without having yet arrived at any conclusion whatever; the book now held to be the principal authority on the subject, entirely contradicting, as aforesaid, the conclusions which, until very lately, the geological world, if it had not accepted as incontrovertible, at least asserted as positive.

5. In the said book, however,—Gustaf Bischof's Chemical Geology,—there are, at last, collected a large number of important and secure facts, bearing on mineral formation: and principles of microscopic investigation have been established by Mr. Sorby, some years ago, which have, I doubt not, laid the foundation, at last, of the sound knowledge of the conditions under which crystals are formed. Applying Mr. Sorby's method, with steady industry, to the rocks of Cumberland, Mr. Clifton Ward has, so far as I can judge, placed the nature of *these*, at least, within the range of secure investigation. Mr. Ward's kindness has induced him also to spare

the time needful for the test of the primary phenomena of agatescent structure in a similar manner ; and I am engraving the beautiful drawings he sent me, with extreme care, for our next number ; to be published with a letter from him, containing, I suppose, the first serviceable description of agatescent structure yet extant.*

6. Hitherto, however, notwithstanding all that has been accomplished, nobody can tell us how a common flint is made. Nobody ever made one ; nobody has ever seen one naturally coagulate, or naturally dissolve ; nobody has ever watched their increase, detected their diminution, or explained the exact share which organic bodies have in their formation. The splendid labours of Mr. Bowerbank have made us acquainted with myriads of organic bodies which have provoked siliceous concretion, or become entangled in it : but the beautiful forms which these present have only increased the difficulty of determining the real crystalline modes of siliceous structure, unaffected by organic bodies.

7. Crystalline *modes*, I say, as distinguished from crystalline *laws*. It is of great importance to mineralogy that we should carefully distinguish between the laws or limits which determine the possible angles in the form of a mineral, and the modes, or measures, in which, according to its peculiar nature or circumstances, it conducts itself under these restrictions.

Thus both cuprite and fluor are under laws which enforce cubic or octohedric angles in their crystals ; but cuprite can arrange its cubes in fibres finer than those of the softest silk, while fluor spar only under rare conditions distinctly elongates its approximate cube into a parallelopiped.

Again, the prismatic crystals of Wavellite arrange themselves invariably in spherical or reniform concretions ; but the rhombohedral crystals of quartz and hematite do so only under particular conditions, the study of which becomes a quite distinct part of their lithology.

* I must, however, refer the reader to the valuable summary of work hitherto done on this subject by Professor Rupert Jones, (Proceedings of Geologist's Association, Vol. IV., No. 7,) for examination of these questions of priority.

8. This stellar or radiant arrangement is one essential condition in the forms and phenomena of agate and chalcedony; and Mr. Clifton Ward has shown in the paper to which I have just referred, that it is exhibited under the microscope as a prevalent condition in their most translucent substance, and on the minutest scale.

Now all siliceous concretions, distinguishing themselves from the mass of the surrounding rocks, are to be arranged under two main classes; briefly memorable as knots and nuts; the latter, from their commonly oval form, have been usually described by mineralogists as, more specially, 'almonds.'

'Knots' are concretions of silica round some central point or involved substance, (often organic); such knots being usually harder and more solid in the centre than at the outside, and having their fibres of crystallization, if visible, shot outwards like the rays of a star, forming pyramidal crystals on the exterior of the knot.

9. 'Almonds' are concretions of silica formed in cavities of rocks, or, in some cases, probably by their own energy producing the cavities they enclose; the fibres of crystallization, if visible, being directed from the outside of the almond-shell towards its interior cavity.

10. These two precisely opposite conditions are severally represented best by a knot of sound black flint in chalk, and by a well-formed hollow agate in a volcanic rock.

I have placed in the Sheffield Museum a block of black flint, formed round a bit of Inoceramus shell; and an almond-shell of agate, about six times as big as a cocoa nut, which will satisfactorily illustrate these two states. But between the two, there are two others of distinctly gelatinous silica, and distinctly crystalline silica, filling pores, cavities, and veins, in rocks, by infiltration or secretion. And each of these states will be found passing through infinite gradations into some one of the three others, so that separate account has to be given of every step in the transitions before we can rightly understand the main types.

11. But at the base of the whole subject lies, first, the clear understanding of the way a knot of solid crystalline

substance—say, a dodecahedral garnet—forms itself out of a rock-paste, say greenstone trap, without admitting a hairs-breadth of interstice between the formed knot and enclosing paste ; and, secondly, clear separation in our thoughts, of the bands or layers which are produced by crystalline segregation, from those produced by successively accumulating substance. But the method of increase of crystals themselves, in an apparently undisturbed solution, has never yet been accurately described ; how much less the phenomena resulting from influx of various elements, and changes of temperature and pressure. The frontispiece to the third number of 'Deucalion' gives typical examples of banded structure resulting from pure crystalline action ; and the three specimens, 1. A. 21, 22, and 23, at Sheffield, furnish parallel examples of extreme interest. But a particular form of banding in flint, first noticed and described by Mr. S. P. Woodward,* is of more interest than any other in the total obscurity of its origin ; and in the extreme decision of the lines by which, in a plurality of specimens, the banded spaces are separated from the homogeneous ones, indicating the first approach to the conditions which produce, in more perfect materials, the forms of, so-called 'brecciated' agates. Together with these, a certain number of flints are to be examined which present every appearance of having been violently fractured and re-cemented. Whether fractured by mechanical violence, by the expansive or decomponent forces of contained minerals, or by such slow contraction and re-gelation as must have taken place in most veins through masses of rock, we have to ascertain by the continuance of such work as my friend has here begun.

Letter I.†—*Introductory.*

12. "I am beginning to be perplexed about the number of flints, containing problems and illustrations, and wondering to what extent my inquiries will be of any use to you.

* 'Geological Magazine,' 1864, vol. i., p. 145, pl. vii. and viii.

† I shall put my own notes on these and any future communications I may insert, in small print at the bottom of the pages ; and with letter-

"I intended at first to collect only what was really beautiful in itself—'crystalline'! but how the subject widens, and how the arbitrary divisions do run into one another! What a paltry shifting thing our classification is! One is sometimes tempted to give it all up in disgust, and I have a shrewd suspicion that all scientific classification (except for mutual aid to students) is absurd and pedantic: (*a*) varieties, species, genera, classes, orders, have most of them more in common than of divergence,—'a forming spirit' everywhere, for use and beauty.

"It is (to me) impossible to separate purely mineral and chemical siliceous bodies in chalk, (*b*) from those which are partly formed by the silicate-collecting sponges, which seem to have given them their forms.

"Who is to say that the radiations and accretions of a crystal are not life, but that the same arrangements in a leaf or a tree are life?—that the clouds which float in their balanced changeableness are not as much guided and defined as the clouds of the chalcedony, or the lenses of the human eye which perceives them?

"I think the following facts are plain:

"1. The chalk bands do go through the flint.

"2. Fissures in flints are constantly repaired by fresh deposits of chalcedony and silex.

"3. Original sponge matter is preserved (*c*) and obliterated by siliceous deposit, in extent and degree varying infinitely, and apparently proportioned to the amount of iron present—*i.e.*, the iron preserves original form, unless when combined with sulphur enough to crystallize, when all the original structure disappears.

references—*a*, *b*, etc.; but the notes of the authors themselves will be put at the end of their papers, in large print, and with number-references—1, 2, etc.

(*a*) All, at least, is imperfect; and most of it absurd in the attempt to be otherwise.

(*b*) It may be doubtful if any such exist in chalk; but, if they exist, they will eventually be distinguishable.

(*c*) Q. The form or body of it only; is the matter itself ever preserved?

"4. Amygdaloids seem to be formed by a kind of independent or diverse arrangement of molecules, caused by slight admixture of foreign minerals."

LETTER II.—*Memoranda made at Mantell's Quarry, Cuckfield, on the banding noticed in the beds and nodules of the siliceous calciferous sandstone there, 31st May,* 1876.

Nos. I. and II. Ovate, concentric, ferruginous bandings; the centre apparently (1) free from banding.

III. Bands arranged at acute angles. These bands are not caused by fracture, but apparently by the intersection, at an acute angle, of the original lines of deposit. (*d*)

IV. In this specimen the newly fractured surfaces show no bandings, but the weathered surface develops the banding.

V. Ditto—*i.e.* bands parallel; much more ferruginous and consequently more friable when exposed to weathering.

May not something be learnt regarding the laws of banding in agates, flints, etc., from observing the arrangement of banding in rocks composed mainly of siliceous matter? (*e*)

May not some of the subtler influences which regulate the growth of trees in their lines of annual increase (magnetic probably) have some effect in the arrangement of minerals in solution?—nay, even of the higher vital processes, such as the deposition of osseous matter in teeth and bones? (*f*)

LETTER III.—*Memoranda respecting banded chalk.*

I. In the banded lines (ferruginous) noticed above and below the horizontal fissures beneath the cliff at the Hope Gap, Seaford, it is evident that these lines are not markings of

Note 1, page 121.

(*d*) These angular concretions require the closest study; see the segments of spheres in the plate given in the last number.

(*e*) More, I should say, from the agates, respecting the laws of banding in rocks: see the plate to the present number. When we can explain the interruptions of the bands on such scale as this, we may begin to understand some of those in larger strata.

(*f*) Yes, certainly; but in such case, the teeth and bones act by mineral law; not the minerals by teeth and bone law.

original deposition, but are caused by successive infiltrations of water containing iron in solution. (*g*)

II. Concentric markings of the same nature are observable in places where—

a. Iron pyrites are decomposing, and the iron in solution is being successively infiltrated into the surrounding chalk rock.

b. From dropping of ferruginous springs through crevices on horizontal surfaces.

c. This is observable also on surfaces of tabular flint.

III. Very peculiar contorted bandings, (similar to the so-called contorted-rocks,) are observable in certain places, notably in the face of the chalk-pit on the east side of Goldstone Bottom. This chalk-pit, or quarry, is remarkable—

1. *For the contorted bandings in the chalk rock which are not markings of original deposition, being quite independent of original stratification.* (*h*)

2. For the excessive shattering and fissuring observable.

3. For the fact that these cracks and fissures have been refilled with distinctive and varying substances, as with flint, clay, Websterite, and intermediate admixtures of these substances.

4. For veins of flint, formerly horizontal, which show visible signs of displacement by subsidence.

5. For the numerous fissures in these veins of tabular flint being stained by iron, which apparently aids in the further process of splitting up and of widening the minute crevices in the flint. The iron also appears to be infiltrated at varying depths into the body of unfractured flint.

Qy. Has not ordinary flint the power or property of absorbing ferruginous fluid?

(*g*) Questionable. Bands are almost always caused by concretion, or separation, not infiltration. However caused, the essential point, in the assertion of which this paper has so great value, is their distinction from strata.

(*h*) A most important point. It is a question with me whether the greater number of minor contortions in Alpine limestones may not have been produced in this manner. When once the bands are arranged by segregation, chemical agencies will soon produce mechanical separation, as of original beds.

LETTER IV.—*Memoranda respecting brecciate flint.*

"*June* 7, 1876.

"I hasten to report the result of my fresh inquiry respecting the specimen I first sent to you as 'breccia,' but which you doubted.

"The site is the embouchure of the little tidal river Cuckmere, about two miles east of Seaford. I found a block at about the same spot (about three hundred yards east of the coastguard station, and about three quarters of the distance west of the river's mouth).

"The rocks are here covered with sand, or with a bed of the old valley alluvium, not yet removed by wave action. Travelling westward, the transported blocks of breccia gradually increase in size, (a pretty sure augury that they were derived from a western source). The whole coast is subject to a very rapid degradation and consequent encroachment of the sea, the average in some places being from twenty-five to thirty feet yearly. At a spot a hundred yards east of the coastguard station, blocks of one or two tons were visible. The denuded chalk rock is of chalk, seamed and fissured; the cliff of the same nature; but all the flints, and especially the tabular veins, are splintered and displaced to an unusual extent.

"Farther westward yet, the blocks of breccia weigh several tons, the cement being itself fissured, and in some places consisting of angular fragments stained with iron. From one mass I extracted a hollow circular flint split into four or five pieces, the fragments, although displaced, re-cemented in juxtaposition. (*i*)

"At the Hope Gap, the whole cliff becomes a fractured mass, the fissures being refilled, sometimes with calcareous cement, sometimes with clay, and in other places being hollow.

"From the sides of an oblique fissure filled with clay I extracted two pieces of a nodular flint, separated from each

(*i*) I am not prepared to admit, yet, that any of these phenomena are owing to violence. We shall see.

other by a two-inch seam of clay: when replaced (the clay having been removed) the two fitted exactly. An examination of the rocks shows that the fissures, which run in all directions, are largest when *nearly horizontal*, dipping slightly seawards.

"The upper and lower portions of some of these horizontal fissures are banded with iron stains, evidently derived from iron-water percolating the seams.

"If I am right, therefore, the mystery seems to be explained thus: (*k*)—

"I. Rain water, charged with carbonic acid, falling on the hills behind, trickles past the grass and humus beneath, through the cracks in the chalk, dissolving the carbonate of lime into a soluble bi-carbonate. Falling downwards, it escapes seawards through the horizontal fissures, widening them by its solvent power.

"II. The weight of the superincumbent mass by slow, certain, irregular pressure, descends, maintaining the contact of surfaces, but still ever sinking at intervals, varied by the resisting forces of weight and pressure.

"III. This process is probably accelerated by the inflow and reflow of salt water at the ebb and flow of tide (into the fissures).

"IV. At certain periods, probably in the summer, (as soluble bi-carbonate of lime becomes less soluble as temperature increases,) a portion becomes redeposited as a hard semi-crystalline calcareous cement.

"V. This cement appears, in some instances, to be slightly siliceous, and may have a tendency, by the mutual attraction of siliceous matter, to form solid layers of tabular flint.

"VI. If these deductions be correct, it is probable that the great results involved in the sinking of limestone hills, and the consequent encroachment of the sea, may be traced (step

(*k*) I think this statement of Mr. Willett's extremely valuable; and see no reason to doubt its truth, as an explanation of the subsidence of chalk and limestone in certain localities. I do not hitherto receive it as any explanation of fracture in flints. I believe Dover Cliffs might sink to Channel bottom without splitting a flint, unless bedded.

by step) to the springs in valleys 'which run among the hills;' thence to the rain and dewdrops; higher up to the mists and clouds; and so onward, by solar heat, to the ocean, where at last again they find their rest."

Letter V.—*Final Abstract.*

"*June* 13, 1876.

"In addition to the heat derived from summer and atmospheric changes, there will be a considerable amount of heat evolved from the friction produced between the sides of fissures when slipping and subsidence occur, and from the crushing down of flint supports when weight overcomes resistance.

"After heavy rainfall—

1. Fissures are filled.
2. Solution is rapid.
3. Hydraulic pressure increases.
4. Fissures are widened.

"After a period of dry weather—

1. Solution is diminished.
2. Hydraulic pressure relieved.
3. Subsidence and flint-crushing commence, or progress more rapidly.
4. Heat is evolved.
5. Carbonic acid discharged.
6. Semi-crystalline carbonate of lime is deposited around.
   a. Fragments of crushed flint, (at rest at intermitting intervals between motion of rocks).
   b. Angular fragments of original chalk rock.
   c. Angular fractured pieces of old cement.

"I have a dawning suspicion that siliceous deposits (as chalcedony, etc.) are made when the temperature falls, for reasons which I must postpone to a future paper."

(1) Probably the same arrangement exists (concentric), but has not been made visible because the iron has not been oxydized.

CHAPTER X.

'THIRTY YEARS SINCE.'

VILLAGE OF SIMPLON, 2*d September*, 1876.

1. I AM writing in the little one-windowed room opening from the salle-à-manger of the Hotel de la Poste; but under some little disadvantage, being disturbed partly by the invocation, as it might be fancied, of calamity on the heads of nations, by the howling of a frantic wind from the Col; and partly by the merry clattering of the knives and forks of a hungry party in the salon doing their best to breakfast adequately, while the diligence changes horses.

In that same room,—a little earlier in the year,—two-and-thirty years ago, my father and mother and I were sitting at one end of the long table in the evening: and at the other end of it, a quiet, somewhat severe-looking, and pale, English (as we supposed) traveller, with his wife; she, and my mother, working; her husband carefully completing some mountain outlines in his sketch-book.

2. Those days are become very dim to me; and I forget which of the group spoke first. My father and mother were always as shy as children; and our busy fellow-traveller seemed to us taciturn, slightly inaccessible, and even Alpestre, and, as it were, hewn out of mountain flint, in his serene labour.

Whether some harmony of Scottish accent struck my father's ear, or the pride he took in his son's accomplishments prevailed over his own shyness, I think we first ventured word across the table, with view of informing the grave draughtsman that *we* also could draw. Whereupon my own sketch-book was brought out, the pale traveller politely permissive. My good father and mother had stopped at the

Simplon for me, (and now, feeling miserable myself in the thin air, I know what it cost them,) because I wanted to climb the high point immediately west of the Col, thinking thence to get a perspective of the chain joining the Fletschhorn to the Monte Rosa. I had been drawing there the best part of the afternoon, and had brought down with me careful studies of the Fletschhorn itself, and of a great pyramid far eastward, whose name I did not know, but, from its bearing, supposed it must be the Matterhorn, which I had then never seen.

3. I have since lost both these drawings; and if they were given away, in the old times when I despised the best I did, because it was not like Turner, and any friend has preserved them, I wish they might be returned to me; for they would be of value in Deucalion, and of greater value to myself; as having won for me, that evening, the sympathy and help of James Forbes. For his eye grew keen, and his face attentive, as he examined the drawings; and he turned instantly to me as to a recognized fellow-workman,—though yet young, no less faithful than himself.

He heard kindly what I had to ask about the chain I had been drawing; only saying, with a slightly proud smile, of my peak supposed to be the Matterhorn,* "No,—and when once you have seen the Matterhorn, you will never take anything else for it!"

He told me as much as I was able to learn, at that time, of the structures of the chain, and some pleasant general talk followed; but I knew nothing of glaciers then, and he had his evening's work to finish. And I never saw him again.

I wonder if he sees me now, or guided my hand as I cut the leaves of M. Violet-le-Duc's 'Massif du Mont Blanc' this morning, till I came to page 58,—and stopped!

I must yet go back, for a little while, to those dead days.

4. Failing of Matterhorn on this side of the valley of the Rhone, I resolved to try for it from the other; and begged my father to wait yet a day for me at Brieg.

No one, then, had ever heard of the Bell Alp; and few English knew even of the Aletsch glacier. I laid my plans from

* It was the Weisshorn.

the top of the Simplon Col; and was up at four, next day; in a cloudless morning, climbing the little rock path which ascends directly to the left, after crossing the bridge over the Rhone, at Brieg; path which is quite as critical a little bit of walking as the Ponts of the Mer de Glace; and now, encumbered with the late fallen shatterings of a flake of gneiss of the shape of an artichoke leaf, and the size of the stern of an old ship of the line, which has rent itself away, and dashed down like a piece of the walls of Jericho, leaving exposed, underneath, the undulatory surfaces of pure rock, which, I am under a very strong impression, our young raw geologists take for real "muttoned" glacier tracks.*

I took this path because I wanted first to climb the green wooded mass of the hill rising directly over the valley, so as to enfilade the entire profiles of the opposite chain, and length of the valley of the Rhone, from its brow.

By midday I had mastered it, and got up half as high again, on the barren ridge above it, commanding a little tarn; whence, in one panorama are seen the Simplon and Saas Alps on the south, with the Matterhorn closing the avenue of the valley of St. Nicolas; and the Aletsch Alps on the north, with all the lower reach of the Aletsch glacier. This panorama I drew carefully; and slightly coloured afterwards, in such crude way as I was then able; and fortunately not having lost this, I place it in the Sheffield Museum, for a perfectly trustworthy witness to the extent of snow on the Breithorn, Fletschhorn, and Montagne de Saas, thirty years ago.

My drawing finished, I ran round and down obliquely to the Bell Alp, and so returned above the gorge of the Aletsch torrent—making some notes on it afterwards used in 'Modern Painters,' many and many such a day of foot and hand labour having been needed to build that book, in which my friends, nevertheless, I perceive, still regard nothing but what they are pleased to call its elegant language, and are entirely indifferent, with respect to that and all other books they read, whether the elegant language tells them truths or lies.

*I saw this wisely suggested in a recent number of the 'Alpine Journal.'

That book contains, however, (and to-day it is needful that I should not be ashamed in this confidence of boasting) the first faithful drawings ever given of the Alps, not only in England, but in Europe ; and the first definitions of the manner in which their forms have been developed out of their crystalline rocks.

6. 'Definitions' only, observe, and descriptions; but no 'explanations.' I knew, even at that time, far too much of the Alps to theorize on them ; and having learned, in the thirty years since, a good deal more, with the only consequence of finding the facts more inexplicable to me than ever, laid M. Violet-le-Duc's book on the seat of the carriage the day before yesterday, among other stores and preparations for passing the Simplon, contemplating on its open first page the splendid dash of its first sentence into space,—"La croute terrestre, refroidie au moment du plissement qui a formé le massif du Mont Blanc,"—with something of the same amazement, and same manner of the praise, which our French allies are reported to have rendered to our charge at Balaclava :—

"C'est magnifique ;—mais ce n'est pas"—la geologie.

7. I soon had leisure enough to look farther, as the steaming horses dragged me up slowly round the first ledges of pines, under a drenching rain which left nothing but their nearest branches visible. Usually, their nearest branches, and the wreaths of white clouds braided among them, would have been all the books I cared to read ; but both curiosity and vanity were piqued by the new utterances, prophetic, apparently, in claimed authority, on the matters timidly debated by me in old time.

I soon saw that the book manifested, in spite of so great false-confidence, powers of observation more true in their scope and grasp than can be traced in any writer on the Alps since De Saussure. But, alas, before we had got up to Berisal, I had found also more fallacies than I could count, in the author's first statements of physical law; and seen, too surely, that the poor Frenchman's keen natural faculty, and quite splendid zeal and industry, had all been wasted, through the wretched

national vanity which made him interested in Mont Blanc only 'since it became a part of France,' and had thrown him totally into the clique of Agassiz and Desor, with results in which neither the clique, nor M. Violet, are likely, in the end, to find satisfaction.

8. Too sorrowfully weary of bearing with the provincial temper, and insolent errors, of this architectural restoration of the Gothic globe, I threw the book aside, and took up my Carey's Dante, which is always on the carriage seat, or in my pocket—not exactly for reading, but as an antidote to pestilent things and thoughts in general; and store, as it were, of mental quinine,—a few lines being usually enough to recover me out of any shivering marsh fever fit, brought on among foulness or stupidity.

It opened at a favourite old place, in the twenty-first canto of the Paradise, (marked with an M. long ago, when I was reading Dante through to glean his mountain descriptions):—

> "'Twixt either shore
> Of Italy, nor distant from thy land," etc.;

and I read on into the twenty-third canto, down to St. Benedict's

> "There, all things are, as they have ever been;
> Our ladder reaches even to that clime,
> Whither the patriarch Jacob saw it stretch
> Its topmost round, when it appeared to him
> With angels laden. But to mount it now
> None lifts his foot from earth; and hence my rule
> Is left a profitless stain upon the leaves.
> The walls, for abbey reared, turned into dens;
> The cowls, to sacks choked up with musty meal.
> * * * *
> His convent, Peter founded without gold
> Or silver; I, with prayers and fasting, mine;
> And Francis, his, in meek humility.
> And if thou note the point whence each proceeds,
> Then look what it hath erred to, thou shalt find
> The white turned murky.
> Jordan was turned back,
> And a less wonder than the refluent sea
> May, at God's pleasure, work amendment here."

9. I stopped at this, (holding myself a brother of the third order of St. Francis,) and began thinking how long it would take for any turn of tide by St. George's work, when a ray of light came gleaming in at the carriage window, and I saw, where the road turns into the high ravine of the glacier galleries, a little piece of the Breithorn snowfield beyond.

Somehow, I think, as fires never burn, so skies never clear, while they are watched; so I took up my Dante again, though scarcely caring to read more; and it opened, this time, not at an accustomed place at all, but at the "I come to aid thy wish," of St. Bernard, in the thirty-first canto. Not an accustomed place, because I always think it very unkind of Beatrice to leave him to St. Bernard; and seldom turn expressly to the passage: but it has chanced lately to become of more significance to me, and I read on eagerly, to the "So burned the peaceful oriflamme," when the increasing light became so strong that it awaked me, like a new morning; and I closed the book again, and looked out.

We had just got up to the glacier galleries, and the last films of rain were melting into a horizontal bar of blue sky which had opened behind the Bernese Alps.

I watched it for a minute or two through the alternate arch and pier of the glacier galleries, and then as we got on the open hill flank again, called to Bernardo* to stop.

10. Of all views of the great mountains that I know in Switzerland, I think this, of the southern side of the Bernese range from the Simplon, in general the most disappointing—for two reasons: the first, that the green mass of their foundation slopes so softly to the valley that it takes away half the look of their height; and the second, that the greater peaks are confused among the crags immediately above the Aletsch glacier, and cannot, in quite clear weather, be recognized as more distant, or more vast. But at this moment, both these disadvantages were totally conquered. The whole valley was full of absolutely impenetrable wreathed cloud, nearly all pure

* Bernardo Bergonza, of the Hotel d'Italie, Arona, in whom any friend of mine will find a glad charioteer; and they cannot anywhere find an abler or honester one.

white, only the palest grey rounding the changeful domes of it; and beyond these domes of heavenly marble, the great Alps stood up against the blue,—not wholly clear, but clasped and entwined with translucent folds of mist, traceable, but no more traceable, than the thinnest veil drawn over St. Catherine's or the Virgin's hair by Lippi or Luini; and rising as they were withdrawn from such investiture, into faint oriflammes, as if borne by an angel host far distant; the peaks themselves strewn with strange light, by snow fallen but that moment,—the glory shed upon them as the veil fled;—and intermittent waves of still gaining seas of light increasing upon them, as if on the first day of creation.

"À present, vous pouvez voir l'hotel sur le Bell Alp, bati par Monsieur Tyndall."

The voice was the voice of the driver of the supplementary pair of horses from Brieg, who, just dismissed by Bernardo, had been for some minutes considering how he could best recommend himself to me for an extra franc.

I not instantly appearing favourably stirred by this information, he went on with increased emphasis, "Monsieur le *professeur* Tyndall."

The poor fellow lost his bonnemain by it altogether—not out of any deliberate spite of mine; but because, at this second interruption, I looked at him, with an expression (as I suppose) so little calculated to encourage his hopes of my generosity that he gave the matter up in a moment, and turned away, with his horses, down the hill;—I partly not caring to be further disturbed, and being besides too slow—as I always am in cases where presence of mind is needful—in calling him back again.

11. For, indeed, the confusion into which he had thrown my thoughts was all the more perfect and diabolic, because it consisted mainly in the stirring up of every particle of personal vanity and mean spirit of contention which could be concentrated in one blot of pure black ink, to be dropped into the midst of my aerial vision.

Finding it totally impossible to look at the Alps any more, for the moment, I got out of the carriage, sent it on to the

Simplon village; and began climbing, to recover my feelings and wits, among the mossy knolls above the convent.

They were drenched with the just past rain; glittering now in perfect sunshine, and themselves enriched by autumn into wreaths of responding gold.

The vast hospice stood desolate in the hollow behind them; the first time I had ever passed it with no welcome from either monk, or dog. Blank as the fields of snow above, stood now the useless walls; and for the first time, unredeemed by association; only the thin iron cross in the centre of the roof remaining to say that this had once been a house of Christian Hospitallers.

12. Desolate this, and dead the office of this,—for the present, it seems; and across the valley, instead, "l'hotel sur le Bell Alp, bati par Monsieur Tyndall," no nest of dreamy monks, but of philosophically peripatetic or perisaltatory 'puces des glaces.'

For, on the whole, that is indeed the dramatic aspect and relation of them to the glaciers; little jumping black things, who appear, under the photographic microscope, active on the ice-waves, or even inside of them;—giving to most of the great views of the Alps, in the windows at Geneva, a more or less animatedly punctuate and pulicarious character.

Such their dramatic and picturesque function, to any one with clear eyes; their intellectual function, however, being more important, and comparable rather to a symmetrical succession of dirt-bands,—each making the ice more invisible than the last; for indeed, here, in 1876, are published, with great care and expense, such a quantity of accumulated rubbish of past dejection, and moraine of finely triturated mistake, clogging together gigantic heaped blocks of far-travelled blunder,— as it takes away one's breath to approach the shadow of.

13. The first in magnitude, as in origin, of these long-sustained stupidities,— the pierre-à-Bot, or Frog-stone, par excellence, of the Neuchâtel clique,—is Charpentier's Dilatation Theory, revived by M. Violet, not now as a theory, but an assured principle!—without, however, naming Charpentier

as the author of it; and of course without having read a word of Forbes's demolition of it. The essential work of Deucalion is construction, not demolition; but when an avalanche of old rubbish is shot in our way, I must, whether I would or no, clear it aside before I can go on. I suppose myself speaking to my Sheffield men; and shall put so much as they need know of these logs upon the line, as briefly as possible, before them.

14. There are three theories extant, concerning glacier-motion, among the gentlemen who live at the intellectual 'Hotel des Neuchâtelois.' These are specifically known as the Sliding,—Dilatation,—and Regelation, theories.

When snow lies deep on a sloping roof, and is not supported below by any cornice or gutter, you know that when it thaws, and the sun has warmed it to a certain extent, the whole mass slides off into the street.

That is the way the scientific persons who hold the 'Sliding theory,' suppose glaciers to move. They assume, therefore, two things more; namely, first that all mountains are as smooth as house-roofs; and, secondly, that a piece of ice a mile long and three or four hundred feet deep will slide gently, though a piece a foot deep and a yard long slides fast, —in other words, that a paving-stone will slide fast on another paving-stone, but the Rossberg fall at the rate of eighteen inches a day.

There is another form of the sliding theory, which is that glaciers slide in little bits, one at a time; or, for example, that if you put a railway train on an incline, with loose fastening to the carriages, the first carriage will slide first, as far as it can go, and then stop; then the second start, and catch it up, and wait for the third; and so on, till when the last has come up, the first will start again.

Having once for all sufficiently explained the 'Sliding theory' to you, I shall not trouble myself any more in Deucalion about it.

15. The next theory is the Dilatation theory. The scientific persons who hold *that* theory suppose that whenever a shower of rain falls on a glacier, the said rain freezes inside of it; and that the glacier being thereby made bigger,

stretches itself uniformly in one direction, and never in any other ; also that, although it can only be thus expanded in cold and wet weather, such expansion is the reason that it always goes fastest in hot and dry weather.

There is another form of the Dilatation theory, which is that the glacier expands by freezing its own meltings.

16. Having thus sufficiently explained the Dilatation theory to you, I shall not trouble myself in Deucalion farther about *it ;* noticing only, in bidding it goodbye, the curious want of power in scientific men, when once they get hold of a false notion, to perceive the commonest analogies implying its correction. One would have thought that, with their thermometer in their hand to measure congelation with, and the idea of expansion in their head, the analogy between the tube of the thermometer, and a glacier channel, and the ball of the thermometer, and a glacier reservoir, might, some sunshiny day, have climbed across the muddily-fissured glacier of their wits :—and all the quicker, that their much-studied Mer de Glace bears to the great reservoirs of ice above it precisely the relation of a very narrow tube to a very large ball. The vast ' instrument ' seems actually to have been constructed by Nature, to show to the dullest of savants the difference between the steady current of flux through a channel of drainage, and the oscillatory vivacity of expansion which they constructed their own tubular apparatus to obtain!

17. The last popular theory concerning glaciers is the Regelation theory. The scientific persons who hold *that* theory, suppose that a glacier advances by breaking itself spontaneously into small pieces ; and then spontaneously sticking the pieces together again ;—that it becomes continually larger by a repetition of this operation, and that the enlargement (as assumed also by the gentlemen of the dilatation party), can only take place downwards.

You may best conceive the gist of the Regelation theory by considering the parallel statement, which you may make to your scientific young people, that if they put a large piece of barleysugar on the staircase landing, it will walk downstairs by alternately cracking and mending itself.

I shall not trouble myself farther, in Deucalion, about the Regelation theory.

18. M. Violet-le-Duc, indeed, appears to have written his book without even having heard of it; but he makes most dextrous use of the two others, fighting, as it were, at once with sword and dagger; and making his glaciers move on the Sliding theory when the ground is steep, and on the Dilatation theory when it is level. The woodcuts at pages 65, 66, in which a glacier is represented dilating itself up a number of hills and down again, and that at page 99, in which it defers a line of boulders, which by unexplained supernatural power have been deposited all across it, into moraines at its side, cannot but remain triumphant among monuments of scientific

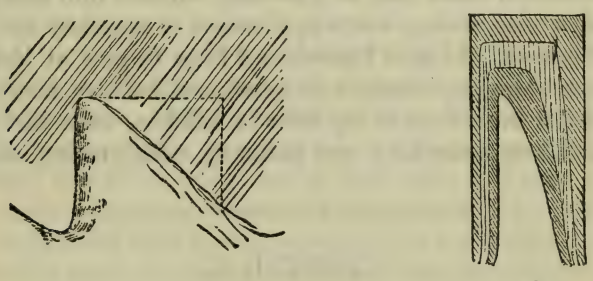


FIG. 5.

error,—bestowing on their author a kind of St. Simeon-Stylitic pre-eminence of immortality in the Paradise of Fools.

19. Why I stopped first at page 58 of this singular volume, I see there is no room to tell in this number of Deucalion; still less to note the interesting repetitions by M. Violet-le-Duc of the Tyndall-Agassiz demonstration that Forbes' assertion of the plasticity of ice in large pieces, is now untenable, by reason of the more recent discovery of its plasticity in little ones. I have just space, however, for a little woodcut from the 'Glaciers of the Alps,' (or 'Forms of Water,' I forget which, and it is no matter,) in final illustration of the Tyndall-Agassiz quality of wit.

20. Fig. 5, A, is Professor Tyndall's illustration of the effect

of sunshine on a piece of glacier, originally of the form shown by the dotted line, and reduced by solar power on the south side to the beautifully delineated wave in the shape of a wedge.

It never occurred to the scientific author that the sunshine would melt some of the top, as well as of the side, of his parallelopiped; nor that, during the process, even on the shady side of it, some melting would take place in the summer air. The figure at B represents three stages of the diminution which would really take place, allowing for these other somewhat important conditions of the question; and it shows, what may farther interest the ordinary observer, how rectangular portions of ice, originally produced merely by fissure in its horizontal mass, may be gradually reduced into sharp, axe-edged ridges, having every appearance of splintery and vitreous fracture. In next Deucalion I hope to give at last some account of my experiments on gelatinous fracture, made in the delightful laboratory of my friend's kitchen, with the aid of her infinitely conceding, and patiently collaborating, cook.

CHAPTER XI.

OF SILICA IN LAVAS.

1. The rocks through whose vast range, as stated in the ninth chapter, our at first well-founded knowledge of their igneous origin gradually becomes dim, and fades into theory, may be logically divided into these four following groups.

I. True lavas. Substances which have been rapidly cooled from fusion into homogeneous masses, showing no clear traces of crystallization.

II. Basalts.* Rocks in which, without distinct separation of their elements, a disposition towards crystalline structure manifests itself.

* I use this word as on the whole the best for the vast class of rocks I wish to include; but without any reference to columnar desiccation I consider, in this arrangement, only internal structure.

III. Porphyries. Rocks in which one or more mineral elements separate themselves in crystalline form from a homogeneous paste.

IV. Granites. Rocks in which all their elements have taken crystalline form.

2. These, I say, are logical divisions, very easily tenable. But Nature laughs at logic, and in her infinite imagination of rocks, defies all Kosmos, except the mighty one which we, her poor puppets, shall never discern. Our logic will help us but a little way ;—so far, however, we will take its help.

3. And first, therefore, let us ask what questions imperatively need answer, concerning indisputable lavas, seen by living human eyes to flow incandescent out of the earth, and thereon to cool into ghastly slags.

On these I have practically burnt the soles of my boots, and in their hollows have practically roasted eggs ; and in the lee of them, have been wellnigh choked with their stench ; and can positively testify respecting them, that they were in many parts once fluid under power of fire, in a very fine and soft flux ; and did congeal out of that state into ropy or cellular masses, variously tormented and kneaded by explosive gas ; or pinched into tortuous tension, as by diabolic tongs ; and are so finally left by the powers of Hell, to submit themselves to the powers of Heaven, in black or brown masses of adamantine sponge without water, and horrible honeycombs without honey, interlaid between drifted banks of earthy flood, poured down from merciless clouds whose rain was ashes.

The seas that now beat against these, have shores of black sand ; the peasant, whose field is in these, ploughs with his foot, and the wind harrows.

4. Now of the outsides of these lava streams, and unaltered volcanic ashes, I know the look well enough ; and could supply Sheffield with any quantity of characteristic specimens, if their policy and trade had not already pretty nearly buried them, and great part of England besides, under such devil's ware of their own production. But of the *insides* of these lava streams, and of the recognized alterations of volcanic

tufa, I know nothing. And, accordingly, I want authentic answer to these following questions, with illustrative specimens.

5. *a.* In lavas which have been historically hot to perfect fusion, so as to be progressive, on steep slopes, in the manner of iron out of a furnace in its pig-furrows ;—in such perfect lavas, I say—what kind of difference is there between the substance at the surface and at the extremest known depths, after cooling? It is evident that such lavas can only accumulate to great depths in infernal pools or lakes. Of such lakes, which are the deepest known? and of those known, where are the best sections? I want for Sheffield a series of specimens of any well-fused lava anywhere, showing the gradations of solidity or crystalline consolidation, from the outside to extreme depth.

b. On lavas which have not been historically hot, but of which there is no possible doubt that they were once fluent, (in the air,) to the above-stated degree, what changes are traceable, produced, irrespectively of atmospheric action, by lapse of time? What evidence is there that lavas, once cool to their centres, can sustain any farther crystalline change, or re-arrangement of mineral structure?

c. In lavas either historically or indisputably once fluent, what forms of silica are found? I limit myself at present to the investigation of volcanic *silica:* other geologists will in time take up other minerals ; but I find silica enough, and more than enough, for my life, or at least for what may be left of it.

Now I am myself rich in specimens of Hyalite, and Auvergne stellar and guttate chalcedonies ; but I have no notion whatever how these, or the bitumen associated with them, have been developed ; and I shall be most grateful for a clear account of their locality,—possible or probable mode of production in that locality,—and microscopic structure. Of pure quartz, of opal, or of agate, I have no specimen connected with what I should call a truly 'living' lava ; one, that is to say, which has simply cooled down to its existing form from the fluid state ; but I have sent to the Sheffield Museum a piece of Hyalite, on a living lava, so much like a living wasp's

nest, and so incredible for a lava at all to the general observer, that I want forthwith some help from my mineralogical friends, in giving account of it.

6. And here I must, for a paragraph or two, pass from definition of flinty and molten minerals, to the more difficult definition of flinty and molten hearts; in order to explain why the Hyalite which I have just sent to the men of Sheffield, for their first type of volcanic silica,* is not at all the best Hyalite in my collection. This is because I practically find a certain quantity of selfishness necessary to live by; and having no manner of saintly nature in me, but only that of ordinary men, —(which makes me all the hotter in temper when I can't get ordinary men either to see what I know they can see if they look, or do what I know they can do if they like,)—I get sometimes weary of giving things away, letting my drawers get into disorder, and losing the powers of observation and thought which are connected with the complacency of possession, and the pleasantness of order. Whereupon I have resolved to bring my own collection within narrow limits; but to constitute it resolutely and irrevocably of chosen and curious pieces, for my own pleasure; trusting that they may be afterwards cared for by some of the persons who knew me, when I myself am troubled with care no more.†

7. This piece of Hyalite, however, just sent to Sheffield, though not my best, is the most curiously *definite* example I ever saw. It is on a bit of brown lava, which looks, as aforesaid, a little way off, exactly like a piece of a wasp's nest: seen closer, the cells are not hexagonal, but just like a cast of a spoonful of pease! the spherical hollows having this of notable in them, that they are only as close to each other as they can be, to *admit of their being perfectly round:* therefore, neces-

* I give the description of these seven pieces of Hyalite at Sheffield, in Deucalion, because their description is necessary to explain certain general principles of arrangement and nomenclature.

† By the way, this selfish collection is to be primarily of stones that will *wash*. Of petty troubles, none are more fretting than the effect of dust on minerals that can neither be washed nor brushed. Hence, my specialty of liking for silica, felspar, and the granitic or gneissic rocks.

sarily, with little spaces of solid stone between them. I have not the slightest notion how such a lava can be produced. It is like an oolite with the yolks of its eggs dropped out, and not in the least like a ductile substance churned into foam by expansive gas.

8. On this mysterious bit of gaseous wasp's nest, the Hyalite seems to have been dropped, like drops of glass from a melting glass rod. It seems to touch the lava just as little as it can; sticks at once on the edges of the cells, and laps over without running into, much less filling them. There is not any appearance, and I think no possibility, of exudation having taken place; the silica cannot but, I think, have been deposited; and it is stuck together just as if it had fallen in drops, which is what I mean by calling Hyalite characteristically 'guttate'; but it shows, nevertheless, a tendency to something like crystallization, in irregularities of surface like those of glacier ice, or the kind of old Venetian glass which is rough, and apparently of lumps coagulated. The fracture is splendidly vitreous,—the substance, mostly quite clear, but in parts white and opaque.

9. Now although no other specimen that I have yet seen is so manifestly guttate as this, all the hyalites I know agree in approximate conditions; and associate themselves with forms of chalcedony which exactly resemble the droppings from a fine wax candle. Such heated waxen effluences, as they congeal, will be found thrown into flattened coats; and the chalcedonies in question on the *under* surface precisely resemble them; while on the *upper* they become more or less crystalline, and, in some specimens, form lustrous stellar crystals in the centre.

10. Now, observe, this chalcedony, *capable of crystallization*, differs wholly from chalcedony properly so called, which may indeed be *covered* with crystals, but itself remains consistently smooth in surface, as true Hyalite does, also.

Not to be teazed with too many classes, however, I shall arrange these peculiar chalcedonies with Hyalite; and, accordingly, I send next to the Sheffield Museum, to follow this first Hyalite, an example of the transition from Hyalite to dropped chalcedony, (I. H. 2,) being an Indian volcanic chal-

cedony, translucent, aggregated like Hyalite, and showing a *concave* fracture where a ball of it has been broken out.

11. Next, (I. H. 3,) pure dropped chalcedony. I do not like the word 'dropped' in this use,—so that, instead, I shall call this in future *wax* chalcedony; then (I. H. 4) the same form, with crystalline surface,—this I shall henceforward call *sugar* chalcedony; and, lastly, the ordinary stellar form of Auvergne, *star* chalcedony (I. H. 5).

These five examples are typical, and perfect in their kind: next to them (I. H. 6) I place a wax chalcedony formed on a porous rock, (volcanic ash?) which has at the surface of it small circular *concavities*, being also so irregularly coagulate thoughout that it suggests no mode of deposition whatever, and is peculiar, in this also, that it is thinner in the centre than at the edges, and that no vestige of its substance occurs in the pores of the rock it overlies.

Take a piece of porous broken brick, drop any tallowy composition over four or five inches square of its surface, to the depth of one-tenth of an inch; then drop more on the edges till you have a rampart round, the third of an inch thick; and you will have some likeness of this piece of stone: but how Nature held the composition in her fingers, or composed it to be held, I leave you to guess, for I cannot.

12. Next following, I place the most singular example of all (I. H. 7). The chalcedony in I. H. 6 is apparently dropped on the ashes, and of irregular thickness; it is difficult to understand *how* it was dropped, but once *get* Nature to hold the candle, and the thing is done.

But here, in I. H. 7, it is no longer apparently dropped, but apparently boiled! It rises like the bubbles of a strongly boiling liquid;—but not from a liquid mass; on the contrary, (except in three places, presently to be described,) it coats the volcanic ash in perfectly even thickness—a quarter of an inch, *and no more, nor less, everywhere*, over a space five inches square! and the ash, or lava, itself, instead of being porous throughout the mass, with the silica only on the surface, is filled with chalcedony in every cavity!

Now this specimen completes the transitional series from

hyalite to perfect chalcedony ; and with these seven specimens, in order, before us, we can define some things, and question of others, with great precision.

13. First, observe that all the first six pieces agree in two conditions,—*varying*, and *coagulated*, thickness of the deposit. But the seventh has the remarkable character of *equal*, and therefore probably crystalline, deposition everywhere.

Secondly. In the first six specimens, though the coagulations are more or less rounded, none of them are regularly spherical. But in the seventh, though the larger bubbles (so to call them) are subdivided into many small ones, every uninterrupted piece of the surface is *a portion of a sphere*, as in true bubbles.

Thirdly. The sugar chalcedony, I. H. 4, and stellar chalcedony, I. H. 5, show perfect power of assuming, under favourable conditions, prismatic crystalline form. But there is no trace of such tendency in the first three, or last two, of the seven examples. Nor has there ever, so far as I know, been found prismatic true hyalite, or prismatic true chalcedony.

Therefore we have here essentially three different minerals, passing into each other, it is true ; but, at a certain point, changing their natures definitely, so that *hyalite, becoming wax chalcedony, gains* the power of prismatic crystallization ; and *wax chalcedony, becoming true chalcedony, loses* it again !

And now I must pause, to explain rightly this term 'prismatic,' and others which are now in use, or which are to be used, in St. George's schools, in describing crystallization.

14. A prism, (the *sawn* thing,) in Newton's use of the word, is a triangular pillar with flat top and bottom. Putting two or more of these together, we can make pillars of any number of plane sides, in any regular or irregular shape. Crystals, therefore, which are columnar, and thick enough to be distinctly seen, are called 'prismatic.'

2. But crystals which are columnar, and so delicate that they look like needles, are called 'acicular,' from acus, a needle.

3. When such crystals become so fine that they look like hair or down, and lie in confused directions, the mineral composed of them is called 'plumose.'

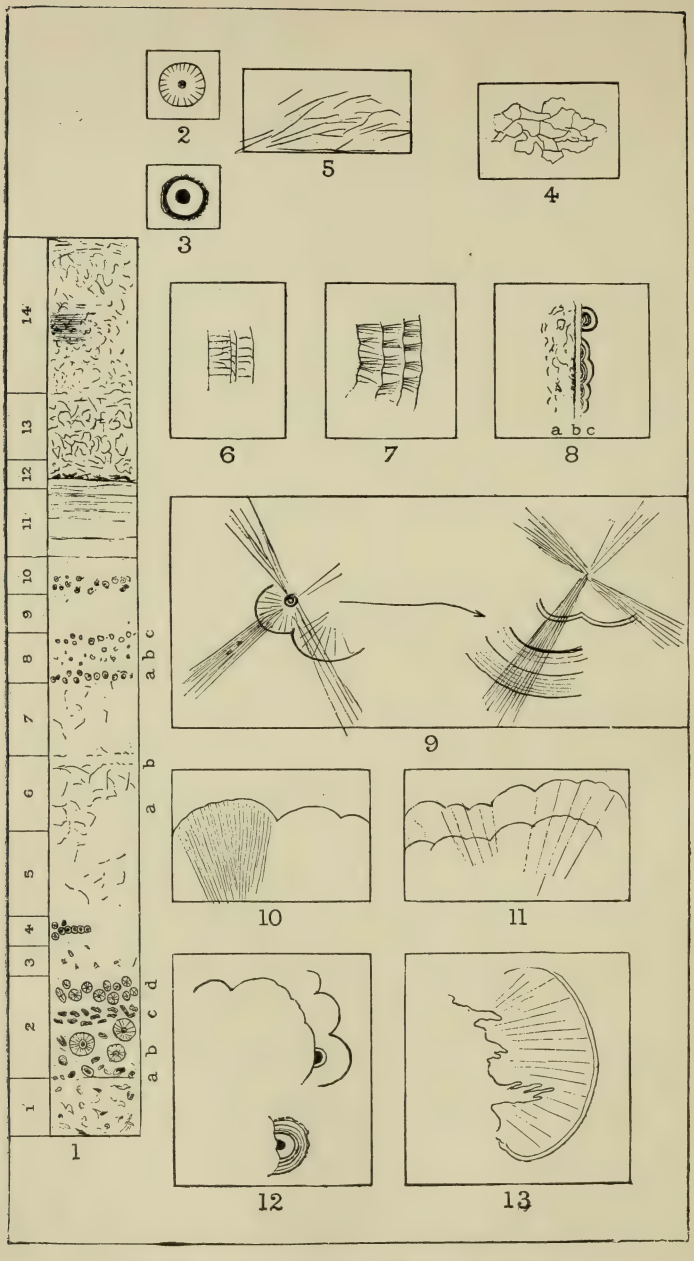


PLATE V.—STRUCTURE OF LAKE AGATE.

4. And when they adhere together closely by their sides, the mineral is called 'fibrous.'
5. When a crystal is flattened by the extension of two of its planes, so as to look like a board, it is called 'tabular'; but people don't call it a 'tabula.'
6. But when such a board becomes very thin, it *is* called a 'lamina,' and the mineral composed of many such plates, laminated.
7. When laminæ are so thin that, joining with others equally so, they form fine leaves, the mineral is 'foliate.'
8. And when these leaves are capable of perpetual subdivision, the mineral is 'micaceous.'

15. Now, so far as I know their works, mineralogists hitherto have never attempted to show cause why some minerals rejoice in longitude, others in latitude, and others in platitude. They indicate to their own satisfaction,—that is to say, in a manner totally incomprehensible by the public,—all the modes of expatiation possible to the mineral, by cardinal points on a sphere: but why a crystal of ruby likes to be short and fat, and a crystal of rutile, long and lean; why amianth should bind itself into bundles of threads, cuprite weave itself into tissues, and silver braid itself into nests,—the use, in fact, that any mineral makes of its opportunities, and the cultivation which it gives to its faculties,—of all this, my mineralogical authorities tell me nothing. Industry, indeed, is theirs to a quite infinite degree, in pounding, decocting, weighing, measuring, but they have remained just as unconscious as vivisecting physicians that all this was only the anatomy of dust,—not its history.

But here at last, in Cumberland, I find a friend, Mr. Clifton Ward, able and willing to begin some true history of mineral substance, and far advanced already in preliminary discovery; and in answer to my request for help, taking up this first hyalitic problem, he has sent me the drawings—engraved, I regret to say, with little justice to their delicacy;*—in Plate V.

* But not by my fault, for I told the engraver to do his best; and took more trouble with the plate than with any of my own.

16. This plate represents, in Figure 1, the varieties of structure in an inch vertical section of a lake-agate; and in Figures 2, 3, 4, and 5, still farther magnified portions of the layers so numbered in Figure 1.

Figures 6 to 9 represent the structure and effect of polarized light in a lake-agate of more distinctly crystalline structure; and Figures 10 to 13, the orbicular concretions of volcanic Indian chalcedony. But before entering farther on the description of these definitely concretionary bands, I think it will be desirable to take note of some facts regarding the larger bands of our Westmoreland mountains, which become to me, the more I climb them, mysterious to a point scarcely tolerable; and only the more so, in consequence of their recent more accurate survey.

17. Leaving their pebbles, therefore, for a little while, I will ask my readers to think over some of the conditions of their crags and pools, explained as best I could, in the following lecture, to the Literary and Scientific Society of the town of Kendal. For indeed, beneath the evermore blessed Kendal-green of their sweet meadows and moors, the secrets of hill-structure remain, for all the work spent on them, in colourless darkness; and indeed, "So dark, Hal, that thou could'st not see thine hand."

CHAPTER XII.

YEWDALE AND ITS STREAMLETS.

Lecture delivered before the Members of the Literary and Scientific Institution, Kendal, 1st October, 1877.

1. I FEAR that some of my hearers may think an apology due to them for having brought, on the first occasion of my being honoured by their audience, a subject before them which they may suppose unconnected with my own special work, past or present. But the truth is, I knew mountains long before I knew pictures; and these mountains of yours, before any

other mountains. From this town, of Kendal, I went out, a child, to the first joyful excursions among the Cumberland lakes, which formed my love of landscape and of painting: and now, being an old man, I find myself more and more glad to return—and pray you to-night to return with me—from shadows to the reality.

I do not, however, believe that one in a hundred of our youth, or of our educated classes, out of directly scientific circles, take any real interest in geology. And for my own part, I do not wonder,—for it seems to me that geology tells us nothing really interesting. It tells us much about a world that once was. But, for my part, a world that only was, is as little interesting as a world that only is to be. I no more care to hear of the forms of mountains that crumbled away a million of years ago to leave room for the town of Kendal, than of forms of mountains that some future day may swallow up the town of Kendal in the cracks of them. I am only interested—so ignoble and unspeculative is my disposition—in knowing how God made the Castle Hill of Kendal, for the Baron of it to build on, and how he brought the Kent through the dale of it, for its people and flocks to drink of.

2. And these things, if you think of them, you will find are precisely what the geologists cannot tell you. They never trouble themselves about matters so recent, or so visible; and while you may always obtain the most satisfactory information from them respecting the congelation of the whole globe out of gas, or the direction of it in space, there is really not one who can explain to you the making of a pebble, or the running of a rivulet.

May I, however, before pursuing my poor little inquiry into these trifling matters, congratulate those members of my audience who delight more in literature than science, on the possession, not only of dales in reality, but of dales in name. Consider, for an instant or two, how much is involved, how much indicated, by our possession in English of the six quite distinct words—vale, valley, dale, dell, glen, and dingle;—consider the gradations of character in scene, and fineness of observation in the inhabitants, implied by that six-foil cluster

of words; as compared to the simple 'thal' of the Germans, 'valle' of the Italians, and 'vallée' of the French, shortening into 'val' merely for ease of pronunciation, but having no variety of sense whatever; so that, supposing I want to translate, for the benefit of an Italian friend, Wordsworth's 'Reverie of Poor Susan,' and come to "Green pastures she views in the midst of the dale," and look for 'dale' in my Italian dictionary, I find "valle lunga e stretta tra poggi alti," and can only convey Mr. Wordsworth's meaning to my Italian listener by telling him that "la povera Susanna vede verdi prati, nel mezzo della valle lunga e stretta tra poggi alti"! It is worth while, both for geological and literary reasons, to trace the essential differences in the meaning and proper use of these words.

3. 'Vale' signifies a large extent of level land, surrounded by hills, or nearly so; as the Vale of the White Horse, or Vale of Severn. The level extent is necessary to the idea; while the next word, 'valley,' means a large hollow among hills, in which there is little level ground, or none. Next comes 'dale,' which signifies properly a tract of level land on the borders of a stream, continued for so great a distance as to make it a district of importance as a part of the inhabited country; as Ennerdale, Langdale, Liddesdale. 'Dell' is to dale, what valley is to vale; and implies that there is scarcely any level land beside the stream. 'Dingle' is such a recess or dell clothed with wood;* and 'glen' one varied with rocks. The term 'ravine,' a rent chasm among rocks, has its necessary parallel in other languages.

Our richness of expression in these particulars may be traced to the refinement of our country life, chiefly since the fifteenth century; and to the poetry founded on the ancient character of the Border peasantry; mingling agricultural with shepherd life in almost equal measure.

I am about to endeavour, then, to lay before you this even-

* Connected partly, I doubt not, with Ingle, or Inglewood,—brushwood to burn, (hence Justice Inglewood in 'Rob Roy'). I have still omitted 'clough,' or cleugh, given by Johnson in relation to 'dingle,' and constant in Scott, from 'Gander-cleugh' to 'Buc(k)-cleugh.'

ing the geological laws which have produced the 'dale,' properly so called, of which I take—for a sweet and near example—the green piece of meadow land through which flows, into Coniston Water, the brook that chiefly feeds it.

4. And now, before going farther, let me at once vindicate myself from the blame of not doing full justice to the earnest continuance of labour, and excellent subtlety of investigation, by which Mr. Aveline and Mr. Clifton Ward have presented you with the marvellous maps and sections of this district, now in course of publication in the Geological Survey. Especially let me, in the strongest terms of grateful admiration, refer to the results which have been obtained by the microscopic observations of minerals instituted by Mr. Sorby, and carried out indefatigably by Mr. Clifton Ward, forming the first sound foundations laid for the solution of the most secret problems of geology.

5. But while I make this most sincere acknowledgment of what has been done by these gentlemen, and by their brother geologists in the higher paths of science, I must yet in all humility lament that this vast fund of gathered knowledge is every bit of it, hitherto, beyond you and me. Dealing only with infinitude of space and remoteness of time, it leaves us as ignorant as ever we were, or perhaps, in fancying ourselves wiser, even more ignorant, of the things that are near us and around,—of the brooks that sing to us, the rocks that guard us, and the fields that feed.

6. To-night, therefore, I am here for no other purpose than to ask the simplest questions ; and to win your interest, if it may be, in pleading with our geological teachers for the answers which as yet they disdain to give.

Here, in your long winding dale of the Kent,—and over the hills, in my little nested dale of the Yew,—will you ask the geologist, with me, to tell us how their pleasant depth was opened for us, and their lovely borders built. For, as yet, this is all that we are told concerning them, by accumulated evidence of geology, as collected in this summary at the end of the first part of Mr. Clifton Ward's volume on the geology of the lakes :—

"The most ancient geologic records in the district indicate marine conditions with a probable proximity of land. Submarine volcanoes broke out during the close of this period, followed by an elevation of land, with continued volcanic eruptions, of which perhaps the present site of Keswick was one of the chief centres. Depression of the volcanic district then ensued beneath the sea, with the probable cessation of volcanic activity; much denudation was effected; another slight volcanic outburst accompanied the formation of the Coniston Limestone, and then the old deposits of Skiddaw Slate and volcanic material were buried thousands of feet deep beneath strata formed in an upper Silurian sea. Next followed an immensely long period of elevation, accompanied by disturbance and alteration of the rocks, and by a prodigious amount of marine and atmospheric denudation. A subsequent depression, to a considerable extent, marked the coming on of the Carboniferous epoch, heralded however, in all likelihood, by a period of more or less intense cold. Then for succeeding ages, the district elevated high above the surrounding seas of later times, underwent that large amount of subaerial denudation which has resulted in the formation of our beautiful English Lake-country."

7. The only sentence in this passage of the smallest service to us, at present, is that stating the large amount of 'subaerial denudation' which formed our beautiful country.

Putting the geological language into simple English, that means that your dales and hills were produced by being 'rubbed down in the open air,'—rubbed down, that is to say, in the manner in which people are rubbed down after a Turkish bath, so as to have a good deal of their skin taken off them. But observe, it would be just as rational to say that the beauty of the human form was owing to the immemorial and continual use of the flesh-brush, as that we owe the beauty of our mountains to the mere fact of their having been rubbed away. No quantity of stripping or denuding will give beauty when there is none to denude;—you cannot rub a statue out of a sandbank, or carve the Elgin frieze with rottenstone for a chisel, and chance to drive it.

8. We have to ask then, first, what material there was here to carve; and then what sort of chisels, and in what workman's hand, were used to produce this large piece of precious chasing or embossed work, which we call Cumberland and Weste-more-land.

I think we shall get at our subject most clearly, however, by taking a somewhat wider view of it than our own dales permit, and considering what 'sub-aerial denudation' means, on the surface of the world, instead of in Westmoreland only.

9. Broadly, therefore, we have, forming a great part of that surface, vast plains or steppes, like the levels of France, and lowlands of England, and prairies of America, composed mostly of horizontal beds of soft stone or gravel. Nobody in general talks of these having been rubbed down; so little, indeed, that I really do not myself know what the notions of geologists are on the matter. They tell me that some four-and-twenty thousand feet or so of slate—say, four miles thick of slate—must have been taken off the top of Skiddaw to grind that into what it is; but I don't know in the least how much chalk or freestone they think has been ground off the East Cliff at Brighton, to flatten that into what it is. They tell me that Mont Blanc must have been three times as high as he is now, when God, or the affinity of atoms, first made him; but give me no idea whatever how much higher the shore of the Adriatic was than it is now, before the lagoon of Venice was rubbed out of it.

10. Collecting and inferring as best I can, it seems to me they mean generally that all the mountains were much higher than they are now, and all the plains lower; and that what has been scraped off the one has been heaped on to the other: but that is by no means generally so; and in the degree in which it is so, hitherto has been unexplained, and has even the aspect of being inexplicable.

I don't know what sort of models of the district you have in the Museum, but the kind commonly sold represent the entire mountain surface merely as so much sandheap washed into gutters. It is totally impossible for your youth, while these false impressions are conveyed by the cheap tricks of

geographical manufacture, to approach the problems of mountain form under any sense of their real conditions: while even advanced geologists are too much in the habit of thinking that every mountain mass may be considered as a heap of homogeneous clay, which some common plough has fretted into similar clods.

But even to account for the furrows of a field you must ask for plough and ploughman. How much more to account for the furrows of the adamantine rock. Shall one plough *there* with oxen?

I will ask you, therefore, to-night, to approach this question in its first and simplest terms, and to examine the edge of the weapon which is supposed to be still at work. The streamlets of the dale seem yet in many places to be excavating their glens as they dash down them,—or deepening the pools under their cascades. Let us in such simple and daily visible matters consider more carefully what are the facts.

11. Towards the end of July, this last summer, I was sauntering among the fern, beside the bed of the Yewdale stream, and stopped, as one does instinctively, at a place where the stream stopped also,—bending itself round in a quiet brown eddy under the root of an oak tree.

How many thousand thousand times have I not stopped to look down into the pools of a mountain stream,—and yet never till that day had it occurred to me to ask how the pools came there. As a matter of course, I had always said to myself, there must be deep places and shallow ones,—and where the water is deep there is an eddy, and where it is shallow there is a ripple,—and what more is there to say about it?

However, that day, having been of late in an interrogative humour about everything, it did suddenly occur to me to ask why the water should be deep there, more than anywhere else. This pool was at a bend of the stream, and rather a wide part of it; and it seemed to me that, for the most part, of the deep pools I recollected *had* been at bends of streams, and in rather wide parts of them;—with the accompanying condition of slow circular motion in the water; and also, mostly under steep banks.

12. Gathering my fifty years' experience of brooks, this seemed to me a tenable generalization, that on the whole, where the bank was steepest, and one was most likely to tumble in, one was least likely to get out again.

And that gloomily slow and sullen motion on the surface, as if the bubbles were unwillingly going round in a mill,—this also I recollected as a usual condition of the deeper water,—*so* usual, indeed, that (as I say) I never once before had reflected upon it as the least odd. Whereas now, the thought struck me as I looked, and struck me harder as I looked longer, If the *bubbles* stay at the top, why don't the *stones* stay at the bottom? If, when I throw in a stick here in the back eddy at the surface, it keeps spinning slowly round and round, and never goes down-stream—am I to expect that when I throw a stone into the same eddy, it will be immediately lifted by it out of the hole and carried away? And yet unless the water at the bottom of the hole has this power of lifting stones out of it, why is the hole not filled up?

13. Coming to this point of the question, I looked up the beck, and down. Up the beck, above the pool, there was a shallow rapid over innumerable stones of all sizes: and down the beck, just below the pool, there was a ledge of rock, against which the stream had deposited a heap of rolled shingle, and over the edges of which it flowed in glittering tricklets, so shallow that a child of four years old might have safely waded across; and between the loose stones above in the steep rapid, and the ledge of rock below—which seemed put there expressly for them to be lodged against—here was this deep, and wide, and quiet, pool.

So I stared at it, and stared; and the more I stared, the less I understood it. And if you like, any of you may easily go and stare too, for the pool in question is visible enough from the coach-road, from Mr. Sly's Waterhead Inn, up to Tilberthwaite. You turn to the right from the bridge at Mr. Bowness's smithy, and then in a quarter of a mile you may look over the roadside wall into this quiet recess of the stream, and consider of many things. For, observe, if there were anything out of the way in the pool—I should not send you to

look at it. I mark it only for one of myriads such in every mountain stream that ever trout leaped or ripple laughed in.

And beside it, as a type of all its brother deeps, these following questions may be wisely put to yourselves.

14. First—How are any of the pools kept clear in a stream that carries shingle? There is some power the water has got of lifting it out of the deeps hitherto unexplained—unthought of. Coming down the rapid in a rage, it drops the stones, and leaves them behind; coming to the deep hole, where it seems to have no motion, it picks them up and carries them away in its pocket. Explain that.

15. But, secondly, beside this pool let us listen to the wide murmuring geological voice, telling us—"To sub-aerial denudation you owe your beautiful lake scenery"!—Then, presumably, Yewdale among the rest?—Therefore we may look upon Yewdale as a dale sub-aerially denuded. That is to say, there was once a time when no dale was there, and the process of denudation has excavated it to the depth you see.

16. But now I can ask, more definitely and clearly, With what chisel has this hollow been hewn for us? Of course, the geologist replies, by the frost, and the rain, and the decomposition of its rocks. Good; but though frost may break up, and the rain wash down, there must have been somebody to cart away the rubbish, or still you would have had no Yewdale. Well, of course, again the geologist answers, the streamlets are the carters; and this stream past Mr. Bowness's smithy is carter-in-chief.

17. How many cartloads, then, may we suppose the stream has carried past Mr. Bowness's, before it carted away all Yewdale to this extent, and cut out all the northern side of Wetherlam, and all that precipice of Yewdale Crag, and carted all the rubbish first into Coniston Lake, and then out of it again, and so down the Crake into the sea? Oh, the geologists reply, we don't mean that the little Crake did all that. Of course it was a great river full of crocodiles a quarter of a mile long; or it was a glacier five miles thick, going ten miles an hour; or a sea of hot water fifty miles deep,—or,—something of that sort. Well, I have no interest, myself, in *any-*

thing of that sort: and I want to know, here, at the side of my little puzzler of a pool, whether there's any sub-aerial denudation going on still, and whether this visible Crake, though it can only do little, does *any*thing. Is it carrying stones at all, now, past Mr. Bowness's? Of course, reply the geologists; don't you see the stones all along it, and doesn't it bring down more every flood? Well, yes; the delta of Coniston Waterhead may, perhaps, within the memory of the oldest inhabitant, or within the last hundred years, have advanced a couple of yards or so. At that rate, those two streams, considered as navvies, are proceeding with the works in hand;—to that extent they are indeed filling up the lake, and to that extent sub-aerially denuding the mountains. But now, I must ask your attention very closely: for I have a strict bit of logic to put before you, which the best I can do will not make clear without some helpful effort on your part.

18. The streams, we say, by little and little, are filling up the lake. They did not cut out the basin of that. Something else must have cut out that, then, before the streams began their work. Could the lake, then, have been cut out all by itself, and none of the valleys that lead to it? Was it punched into the mass of elevated ground like a long grave, before the streams were set to work to cut Yewdale down to it?

19. You don't for a moment imagine that. Well, then, the lake and the dales that descend with it, must have been cut out together. But if the lake not by the streamlets, then the dales not by the streamlets? The streamlets are the consequence of the dales then,—not the causes; and the sub-aerial denudation to which you owe your beautiful lake scenery, must have been something, not only different from what is going on now, but, in one half of it at least, *contrary* to what is going on now. Then, the lakes which are now being filled up, were being cut down; and as probably, the mountains now being cut down, were being cast up.

20. Don't let us go too fast, however. The streamlets are now, we perceive, filling up the big lake. But are they not, then, also filling up the little ones? If they don't cut Coniston water deeper, do you think they are cutting Mr. Marshall's

tarns deeper? If not Mr. Marshall's tarns deeper, are they cutting their own little pools deeper? This pool by which we are standing—we have seen it is inconceivable how it is not filled up,—much more it is inconceivable that it should be cut deeper down. You can't suppose that the same stream which is filling up the Coniston lake below Mr. Browness's, is cutting out another Coniston lake above Mr. Browness's? The truth is that, above the bridge as below it, and from their sources to the sea, the streamlets have the same function, and are filling, not deepening, alike lake, tarn, pool, channel, and valley.

21. And that being so, think how you have been misled by seeking knowledge far afield, and for vanity's sake, instead of close at home, and for love's sake. You must go and see Niagara, must you?—and you will brick up and make a foul drain of the sweet streamlet that ran past your doors. And all the knowledge of the waters and the earth that God meant for you, flowed with it, as water of life.

Understand, then, at least, and at last, to-day, Niagara is a vast Exception—and Deception. The true cataracts and falls of the great mountains, as the dear little cascades and leaplets of your own rills, fall where they fell of old;—that is to say, wherever there's a hard bed of rock for them to jump over. They don't cut it away—and they can't. They do form pools *beneath* in a mystic way,—they excavate them to the depth which will break their fall's force—and then they excavate no more.*

We must look, then, for some other chisel than the streamlet; and therefore, as we have hitherto interrogated the waters at their work, we will now interrogate the hills, in their patience.

22. The principal flank of Yewdale is formed by a steep range of crag, thrown out from the greater mass of Wetherlam, and known as Yewdale Crag.

It is almost entirely composed of basalt, or hard volcanic ash; and is of supreme interest among the southern hills of

* Else, every pool would become a well, of continually increasing depth.

the lake district, as being practically the first rise of the great mountains of England, out of the lowlands of England.

And it chances that my own study window being just opposite this crag, and not more than a mile from it as the bird flies, I have it always staring me, as it were, in the face, and asking again and again, when I look up from writing any of my books,—"How did *I* come here?"

I wrote that last sentence hurriedly, but leave it—as it was written; for, indeed, however well I know the vanity of it, the question is still sometimes, in spite of my best effort, put to me in that old form by the mocking crags, as by a vast couchant Sphinx, tempting me to vain labour in the inscrutable abyss.

But as I regain my collected thought, the mocking question ceases, and the divine one forms itself, in the voice of vale and streamlet, and in the shadowy lettering of the engraven rock.

"Where wast thou when I laid the foundation of the earth? —declare, if thou hast understanding."

23. How Yewdale Crags came there, I, for one, will no more dream, therefore, of knowing, than the wild grass can know, that shelters in their clefts. I will only to-night ask you to consider one more mystery in the things they have suffered since they came.

You might naturally think, following out the idea of 'subaerial denudation' that the sudden and steep rise of the crag above these softer strata was the natural consequence of its greater hardness; and that in general the district was only the remains of a hard knot or kernel in the substance of the island, from which the softer superincumbent or surrounding material had been more or less rubbed or washed away.*

24. But had that been so, one result of the process must have been certain—that the hard rocks would have resisted

* The most wonderful piece of weathering, in all my own district, is on a *projecting* mass of intensely hard rock on the eastern side of Goat's Water. It was discovered and shown to me by my friend the Rev. F. A. Malleson; and exactly resembles deep ripple-marking, though nothing in the grain of the rock indicates its undulatory structure.

more than the soft; and that in some distinct proportion and connection, the hardness of a mountain would be conjecturable from its height, and the whole surface of the district more or less manifestly composed of hard bosses or ridges, with depressions between them in softer materials. Nothing is so common, nothing so clear, as this condition, on a small scale, in every weathered rock. Its quartz, or other hard knots and veins, stand out from the depressed surface in raised walls, like the divisions between the pits of Dante's eighth circle,—and to a certain extent, Mr. Ward tells us, the lava dykes, either by their hardness or by their decomposition, produce walls and trenches in the existing surface of the hills. But these are on so small a scale, that on this map they cannot be discernibly indicated; and the quite amazing fact stands out here in unqualified and indisputable decision, that by whatever force these forms of your mountains were hewn, it cut through the substance of them, as a sword-stroke through flesh, bone, and marrow, and swept away the masses to be removed, with as serene and indiscriminating power as one of the shot from the Devil's great guns at Shoeburyness goes through the oak and the iron of its target.

25. It is with renewed astonishment, whenever I take these sections into my hand, that I observe the phenomenon itself; and that I remember the persistent silence of geological teachers on this matter, through the last forty years of their various discourse. In this shortened section, through Bowfell to Brantwood, you go through the summits of three first-rate mountains down to the lowland moors: you find them built, or heaped; barred, or bedded; here with forged basalt, harder than flint, and tougher than iron,—there, with shivering shales that split themselves into flakes as fine as puff-paste, and as brittle as shortbread. And behold, the hewing tool of the Master Builder sweeps along the forming lines, and shapes the indented masses of them, as a draper's scissors shred a piece of striped sarsnet!

26. Now do but think a little of the wonderfulness in this. If the process of grinding was slow, why don't the hard rocks project? If swift, what kind of force must it have been? and



Fig. 1. Slates of Bull Crag and Maiden Moor. (GEOL^{L} SURVEY.)

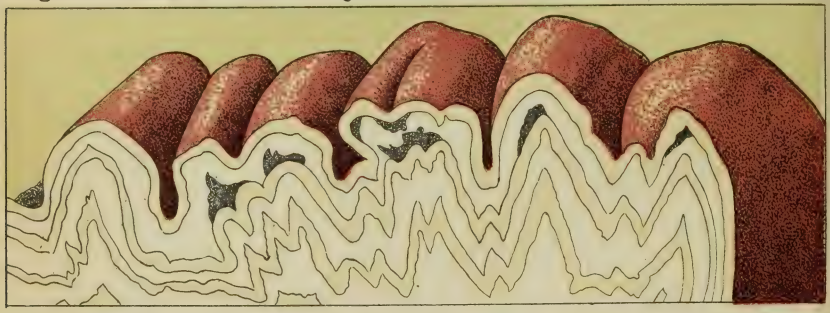


Fig. 2 Pie-Paste Compression from the right, simple.



Fig. 3. Pie-Paste. Compression modified by elevatory forces.



Fig. 4. Pie Paste. Compression restricted to the lower Strata under a rigid upper one.

Plate VI.

LATERAL COMPRESSION OF STRATA

Fig. 1. Ideal. Figs 2. 3 & 4 Practical.

why do the rocks it tore show no signs of rending? Nobody supposes it was indeed swift as a sword or a cannon-ball; but if not, why are the rocks not broken? Can you break an oak plank and leave no splinters, or cut a bed of basalt a a thousand feet thick like cream-cheese?

But you suppose the rocks were soft when it was done. Why don't they squeeze, then?

Make Dover cliffs of baker's dough, and put St. Paul's on the top of them,—won't they give way somewhat, think you? and will you then make Causey Pike of clay, and heave Scawfell against the side of it; and yet shall it not so much as show a bruise?

Yet your modern geologists placidly draw the folded beds of the Skiddaw and Causey Pike slate, *first*, without observing whether the folds they draw are *possible* folds in anything; and, *secondly*, without the slightest suggestion of sustained pressure, or bruise, in any part of them.

27. I have given in my diagram, (Plate VI., Fig. 1,) the section attributed, in that last issued by the Geological Survey, to the contorted slates of Maiden Moor, between Causey Pike and the erupted masses of the central mountains. Now, for aught I know, those contortions may be truly represented; —but if so, they are not contortions by lateral pressure. For, first, they are impossible forms in any substance whatever, capable of being contorted; and, secondly, they are doubly impossible in any substance capable of being squeezed.

Impossible, I say, first in any substance capable of being contorted. Fold paper, cloth, leather, sheets of iron,—what you will, and still you can't *have the folded bed at the top double the length of that at the bottom.* But here, I have measured the length of the upper bed, as compared with that of the lower, and it is twenty miles, to eight miles and a half.

Secondly, I say, these are impossible folds in any substance capable of being squeezed, for every such substance will change its form as well as its direction under pressure. And to show you how such a substance does actually behave, and contort itself under lateral pressure, I have prepared the sections Figures 2, 3, and 4.

28. I have just said, you have no business to seek knowledge far afield, when you can get it at your doors. But more than that, you have no business to go outside your doors for it, when you can get it in your parlour. And it so happens that the two substances which, while the foolish little king was counting out his money, the wise little queen was eating in the parlour, are precisely the two substances beside which wise little queens and kings, and everybody else, may also think, in the parlour,—Bread, and honey. For whatever bread, or at least dough, will do under pressure, ductile rocks, in their proportion, must also do under pressure ; and in the manner that honey will move, poured upon a slice of them,—in that manner, though in its own measure, ice will move, poured upon a bed of them. Rocks, no more than piecrust, can be rolled out without squeezing them thinner ; and flowing ice can no more excavate a valley, than flowing treacle a teaspoon.

29. I said just now, Will you dash Scawfell against Causey Pike?

I take, therefore, from the Geological Survey the section of the Skiddaw slates, which continue the mass of Causey Pike under the Vale of Newlands, to the point where the volcanic mass of the Scawfell range thrusts itself up against them, and laps over them. They are represented, in the section, as you see, (Plate VI., Fig. 1 ;) and it has always been calmly assumed by geologists that these contortions were owing to lateral pressure.

But I must beg you to observe that since the uppermost of these beds, if it were straightened out, would be more than twice the length of the lower ones, you could only obtain that elongation by squeezing the upper bed more than the lower, and making it narrower where it is elongated. Now, if this were indeed at the surface of the ground, the geologists might say the upper bed had been thrown up because there was less weight on it. But, by their own accounts, there were five miles thick of rocks on the top of all this when it was bent. So you could not have made one bed tilt up, and another stay down ; and the structure is evidently an impossible one.

30. Nay, answer the surveyors, impossible or not, it is there. I partly, in pausing, myself doubt its being there. This looks to me an ideal, as well as an impossible, undulation.

But if it is indeed truly surveyed, then assuredly, whatever it may be owing to, it is not owing to lateral pressure.

That is to say, it may be a crystalline arrangement assumed under pressure, but it is assuredly *not* a form assumed by ductile substance under mechanical force. Order the cook to roll out half a dozen strips of dough, and to stain three of them with cochineal. Put red and white alternately one above the other. Then press them in any manner you like; after pressure, a wetted carving knife will give you quite unquestionable sections, and you see the results of three such experiments in the lower figures of the plate.

31. Figure 2 represents the simplest possible case. Three white and three red dough-strips were taken, a red one uppermost, (for the pleasure of painting it afterwards)! They were left free at the top, enclosed at the sides, and then reduced from a foot to six inches in length, by pressure from the right. The result, you see, is that the lower bed rises into sharpest gables; the upper ones are rounded softly. But in the geological section it is the upper bed that rises, the lower keeps down! The second case is much more interesting. The pastes were arranged in the same order, but bent up a little, to begin with, in two places, before applying the pressure. The result was, to my own great surprise, that at these points of previous elevation, the lower bed first became quite straight by tension as it rose, and then broke into transverse faults.

32. The third case is the most interesting of all. In this case, a roof of slate was put over the upper bed, allowing it to rise to some extent only, and the pressure was applied to the two lower beds only.* The upper bed of course exuded backwards, giving these flame-like forms, of which afterwards

* Here I had to give the left-hand section, as it came more neatly. The wrinkled mass on the left colored brown represents the pushing piece of wood, at the height to which it was applied.

I got quite lovely complications by repeated pressures. These I must reserve for future illustration, concluding to-night, if you will permit me, with a few words of general advice to the younger members of this society, formed as it has been to trace for itself a straight path through the fields of literature, and over the rocks of science.

33. First.—Whenever you write or read English, write it pure, and make it pure if ill written, by avoiding all unnecessary foreign, especially Greek, forms of words yourself, and translating them when used by others. Above all, make this a practice in science. Great part of the supposed scientific knowledge of the day is simply bad English, and vanishes the moment you translate it.

There is a farther very practical reason for avoiding all vulgar Greek-English. Greece is now a kingdom, and will I hope remain one, and its language is now living. The ship-chandler, within six doors of me on the quay at Venice had indeed a small English sign—calling himself Ship-Chandler; but he had a large and practically more serviceable, Greek one, calling himself a "προμηθεττης τῶν πλοιων." Now when the Greeks want a little of your science, as in very few years they must, if this absurd practice of using foreign languages for the clarification of scientific principle still holds, what you, in compliment to Greece, call a 'Dinotherium,' Greece, in compliment to you, must call a 'Nastybeastium,'—and you know that interchange of compliments can't last long.

34. II. Observe generally that all knowledge, little or much, is dangerous, in which your progress is likely to be broken short by any strict limit set to the powers of mortals: while it is precisely that kind of knowledge which provokes vulgar curiosity, because it seems so far away; and idle ambition, because it allows any quantity of speculation, without proof. And the fact is that the greater quantity of the knowledge which modern science is so saucy about, is only an asses' bridge, which the asses all stop at the top of, and which, moreover, they can't help stopping at the top of; for they have from the beginning taken the wrong road, and so come to a broken bridge—a Ponte Rotto over the River of

Death, by which the Pontifex Maximus allows them to pass no step farther.

35. For instance,—having invented telescopes and photography, you are all stuck up on your hobby-horses, because you know how big the moon is, and can get pictures of the volcanoes in it!

But you never can get any more than *pictures* of these, while in your own planet there are a thousand volcanoes which you may jump into, if you have a mind to; and may one day perhaps be blown sky high by, whether you have a mind or not. The last time the great volcano in Java was in eruption, it threw out a stream of hot water as big as Lancaster Bay, and boiled twelve thousand people. That's what I call a volcano to be interested about, if you want sensational science.

36. But if not, and you can be content in the wonder and the power of Nature, without her terror,—here is a little bit of a volcano, close at your very doors—Yewdale Crag, which I think will be quiet for our time,—and on which the anagallis tenella, and the golden potentilla, and the sundew, grow together among the dewy moss in peace. And on the cellular surface of one of the blocks of it, you may find more beauty, and learn more precious things, than with telescope or photograph from all the moons in the milky way, though every drop of it were another solar system.

I have a few more serious words to say to the fathers, and mothers, and masters, who have honored me with their presence this evening, with respect to the influence of these far-reaching sciences on the temper of children.

37. Those parents who love their children most tenderly, cannot but sometimes dwell on the old Christian fancy, that they have guardian angels. I call it an old fancy, in deference to your modern enlightenment in religion; but I assure you nevertheless, in spite of all that illumination, there remains yet some dark possibility that the old fancy may be true: and that, although the modern apothecary cannot exhibit to you either an angel, or an imp, in a bottle, the spiritual powers of heaven and hell are no less now, than

heretofore, contending for the souls of your children ; and contending with *you*—for the privilege of their tutorship.

38. Forgive me if I use, for the few minutes I have yet to speak to you, the ancient language,—metaphorical, if you will, of Luther and Fenelon, of Dante and Milton, of Goethe and Shakspeare, of St. John and St. Paul, rather than your modern metaphysical or scientific slang: and if I tell you, what in the issue of it you will find is either life-giving, or deadly, fact,—that the fiends and the angels contend with you daily for the spirits of your children : the devil using to you his old, his hitherto immortal, bribes, of lust and pride ; and the angels pleading with you, still, that they may be allowed to lead your babes in the divine life of the pure and the lowly. To enrage their lusts, and chiefly the vilest lust of money, the devils would drag them to the classes that teach them how to get on in the world ; and for the better pluming of their pride, provoke their zeal in the sciences which will assure them of their being no God in nature but the gas of their own graves.

And of these powers you may discern the one from the other by a vivid, instant, practical test. The devils always will exhibit to you what is loathsome, ugly, and, above all, dead ; and the angels, what is pure, beautiful, and, above all, living.

39. Take an actual, literal instance. Of all known quadrupeds, the unhappiest and vilest, yet alive, is the sloth, having this farther strange devilry in him, that what activity he is capable of, is in storm, and in the night. Well, the devil takes up this creature, and makes a monster of it,—gives it legs as big as hogsheads, claws stretched like the roots of a tree, shoulders like a hump of crag, and a skull as thick as a paving-stone. From this nightmare monster he takes what poor faculty of motion the creature, though wretched, has in its minuter size ; and shows you, instead of the clinging climber that scratched and scrambled from branch to branch among the rattling trees as they bowed in storm, only a vast heap of stony bones and staggering clay, that drags its meat down to its mouth out of the forest ruin. This creature the

fiends delight to exhibit to you, but are permitted by the nobler powers only to exhibit to you in its death.*

40. On the other hand, as of all quadrupeds there is none so ugly or so miserable as the sloth, so, take him for all in all, there is none so beautiful, so happy, so wonderful as the squirrel. Innocent in all his ways, harmless in his food, playful as a kitten, but without cruelty, and surpassing the fantastic dexterity of the monkey, with the grace and the brightness of a bird, the little dark-eyed miracle of the forest

* The Mylodon. An old sketch, (I think, one of Leech's) in Punch, of Paterfamilias improving Master Tom s mind among the models on the mud-bank of the lowest pond at Sydenham, went to the root of the matter. For the effect, on Master Tom's mind of the living squirrel, compare the following account of the most approved modes of squirrel-hunting, by a clerical patron of the sport, extracted for me by a correspondent, from 'Rabbits: how to rear and manage them; with Chapters on Hares, Squirrels, etc.' S. O. Beeton, 248, Strand, W. C.

"It may be easily imagined that a creature whose playground is the top twigs of tall trees, where no human climber dare venture, is by no means easy to capture—especially as its hearing is keen, and its vision remarkably acute. Still, among boys living in the vicinity of large woods and copses, squirrel-hunting is a favorite diversion, and none the less so because it is seldom attended by success. 'The only plan,' says the Rev. Mr. Wood, 'is to watch the animal until it has ascended an isolated tree, or, by a well-directed shower of missiles, to drive it into such a place of refuge, and then to form a ring round the tree so as to intercept the squirrel, should it try to escape by leaping to the ground and running to another tree. The best climber is then sent in chase of the squirrel, and endeavours, by violently shaking the branches, to force the little animal to loose its hold and fall to the earth. But it is by no means an easy matter to shake a squirrel from a branch, especially as the little creature takes refuge on the topmost and most slender boughs. which even bend under the weight of its own small body, and can in no way be trusted with the weight of a human being. By dint, however, of perseverance, the squirrel is at last dislodged, and comes to the ground as lightly as a snow-flake. Hats, caps, sticks, and all available missiles are immediately flung at the luckless animal as soon as it touches the ground, and it is very probably struck and overwhelmed by a cap. The successful hurler flings himself upon the cap, and tries to seize the squirrel as it lies under his property. All his companions gather round him, and great is the disappointment to find the cap empty, and to see the squirrel triumphantly scampering up some tree where it would be useless to follow it.'"

glances from branch to branch more like a sunbeam than a living creature : it leaps, and darts, and twines, where it will ; —a chamois is slow to it ; and a panther, clumsy : grotesque as a gnome, gentle as a fairy, delicate as the silken plumes of the rush, beautiful and strong like the spiral of a fern,—it haunts you, listens for you, hides from you, looks for you, loves you, as if the angel that walks with your children had made it himself for their heavenly plaything.

And this is what *you* do, to thwart alike your child's angel, and his God,—you take him out of the woods into the town, —you send him from modest labour to competitive schooling, —you force him out of the fresh air into the dusty bone-house,—you show him the skeleton of the dead monster, and make him pore over its rotten cells and wire-stitched joints, and vile extinct capacities of destruction,—and when he is choked and sickened with useless horror and putrid air, you let him—regretting the waste of time—go out for once to play again by the woodside ;—and the first squirrel he sees, he throws a stone at !

Carry, then, I beseech you, this assured truth away with you to-night. All true science begins in the love, not the dissection, of your fellow-creatures ; and it ends in the love, not the analysis, of God. Your alphabet of science is in the nearest knowledge, as your alphabet of science is in the nearest duty. "Behold, it is nigh thee, even at the doors." The Spirit of God is around you in the air that you breathe,—His glory in the light that you see ; and in the fruitfulness of the earth, and the joy of its creatures, He has written for you, day by day, His revelation, as He has granted you, day by day, your daily bread.

CHAPTER XIII.

OF STELLAR SILICA.

1. The issue of this number of Deucalion has been so long delayed, first by other work, and recently by my illness, that I think it best at once to begin Mr. Ward's notes on Plate V.

reserving their close, with full explanation of their importance and bearing, to the next following number.

GRETA BANK COTTAGE, KESWICK,
June 13, 1876.

My dear Sir,—I send you a few notes on the microscopic structure of the three specimens I have had cut. In them I have stated merely what I have seen. There has been much which I did not expect, and still more is there that I don't understand.

I am particularly sorry I have not the time to send a whole series of coloured drawings illustrating the various points; but this summer weather claims my time on the mountain-side, and I must give up microscopic work until winter comes round again.

The minute spherulitic structure—especially along the fine brown lines—was quite a surprise, and I shall hope on some future occasion to see more of this subject. Believe me, yours very truly,

J. CLIFTON WARD.

P.S.—There seems to be a great difference between the microscopic structure of the specimens now examined and that of the filled-up vesicles in many of my old lavas here, so far as my *limited* examination has gone.

SPECIMEN A.

No. 1 *commences at the end of the section farthest from A in specimen.*

1. Transparent zone with irregular curious cavities (not liquid), and a few mossy-looking round spots (brownish).

Polarization. Indicating an indefinite semi-crystalline structure. (See note at page 148.)

2. Zone with minute seed-like bodies of various sizes (narrow brownish bands in the specimen of darker and lighter tints).

a. Many cavities, and of an indefinite oval form in general.

b. The large spherulites (2) are very beautiful, the outer

zone (radiate) of a delicate greenish-yellow, the nucleus of a brownish-yellow, and the intermediate zone generally clear.

c. A layer of densely packed bodies, oblong or oval in form.

d. Spherulites generally similar to *b*, but smaller, much more stained of a brownish-yellow, and with more defined nuclei.

Polarization. The spherulites show a clearly radiate polarization, with rotation of a dark cross on turning either of the prisms; the intermediate ground shows the irregular semi-crystalline structure.

3. Clear zone, with little yellowish, dark, squarish specks.

Polarization. Irregular, semi-crystalline.

4. Row of closely touching spherulites with large nucleus and defined margin, rather furry in character (3). Margins and nuclei brown; intermediate space brownish-yellow.

Polarization. Radiate, as in the spherulites 2 *b*.

(This is a short brown band which does not extend down through the whole thickness of the specimen.)

5. Generally clear ground, with a brownish cloudy appearance in parts.

Polarization. Indefinite semi-crystalline.

6 *a*. On a hazy ground may be seen the cloudy margins of separately crystalline spaces.

Polarization. Definite semi-crystalline.*

6 *b*. A clear band with very indefinite polarization.

7. A clearish zone with somewhat of a brown mottled appearance (light clouds of brown colouring matter).

Polarization. Indefinite semi-crystalline.

8. Zone of brownish bodies (this is a fine brown line, about the middle of the section in the specimen).

* By '*indefinite* semi-crystalline' is meant the breaking up of the ground under crossed prisms with sheaves (5) of various colours not clearly margined.

By '*definite* semi-crystalline' is meant the breaking up of the ground under crossed prisms with a mosaic (4) of various colours clearly margined.

By 'semi-crystalline' is meant the interference of crystalline spaces with one another, so as to prevent a perfect crystalline form being assumed.

a. Yellowish-brown nucleated disks.

b. Smaller, scattered, and *generally* non-nucleated disks.

c. Generally non-nucleated.

Polarization. The disks are too minute to show separate polarization effects, but the ground exhibits the indefinite semi-crystalline.

9. Ground showing indefinite semi-crystalline polarization.

10. Irregular line of furry-looking yellowish disks.

11. Zone traversed by a series of generally parallel and faint lines of a brownish-yellow. These are apparently lines produced by colouring matter alone,—at any rate, not by *visible* disks of any kind.

Polarization. Tolerably definite, and limited by the cross lines (6).

12. Dark-brown flocculent-looking matter, as if growing out from a well-defined line, looking like a moss-growth.

13. Defined crystalline interlocked spaces.

Polarization. Definite semi-crystalline.

14. Generally, not clearly defined spaces; central part rather a granular look (spaces very small).

Polarization. Under crossed prisms breaking up into tolerably definite semi-crystalline spaces.

SPECIMEN B.

B 1. In the slice taken from this side there seems to be frequently a great tendency to spherulitic arrangement, as shown by the polarization phenomena. In parts of the white quartz where the polarization appearance is like that of a mosaic pavement, there is even a semi-spherulitic structure. In other parts there are many spherulites on white and yellowish ground.

Between the many parallel lines of a yellowish colour the polarization (7) effect is that of fibrous coloured sheaves.

Here (8) there is a central clear band (*b*); between it and (*a*) a fine granular line with some larger granules (or very minute spherulites). The part (*a*) is carious, apparently with glass cavities. On the other side of the clear band, at *c*, are half-formed and adherent spherulites; the central (shaded) parts

are yellow, and the outer coat, the intermediate portion clearish.

B 2. The slice from this end of the specimen shows the same general structure.

The general tendency to spherulitic arrangement is well seen in polarized light, dark crosses frequently traversing the curved structures.

Here (in Fig. 9) the portion represented on the left was situated close to the other portion, where the point of the arrow terminates, both crosses appearing together and revolving in rotation of one of the prisms.

SPECIMEN C.

The slice from this specimen presents far less variety than in the other cases. There are two sets of structural lines—those radiate (10), and those curved and circumferential (11). The latter structure is exceedingly fine and delicate, and not readily seen, even with a high power, owing to the fine radii not being marked out by any colour, the whole section being very clear and white.

A more decidedly nucleated structure is seen in part 12.

In (13) is a very curious example of a somewhat more glassy portion protruding in finger-like masses into a radiate, clear, and largely spherical portion.

2. These notes of Mr. Clifton Ward's contain the first accurate statements yet laid before mineralogists respecting the stellar crystallization of silica, although that mode of its formation lies at the very root of the structure of the greater mass of amygdaloidal rocks, and of all the most beautiful phenomena of agates. And indeed I have no words to express the wonder with which I see work like that done by Cloizeaux in the measurement of quartz angles, conclude only in the construction of the marvellous diagram, as subtle in execution as amazing in its accumulated facts,* without the least reference to the conditions of varying energy which produce the spherical masses of chalcedony! He does not even use the classic name of the mineral, but coins the useless one, Gey-

* Facing page 8 of the 'Manuel de Mineralogie.'

serite, for the absolutely local condition of the Iceland sinter.

3. And although, in that formation, he went so near the edge of Mr. Clifton Ward's discovery as to announce that "leur masse se compose ellemême de sphères enchâssées dans une sorte de pâte gélatineuse," he not only fails, on this suggestion, to examine chalcedonic structure generally, but arrested himself finally in the pursuit of his inquiry by quietly asserting, "ce genre de structure n'a jamais été recontré jusqu'ici sur aucune autre variété de silice naturelle ou artificielle,"—the fact being that there is no chalcedonic mass whatever, which does *not* consist of spherical concretions more or less perfect, enclosed in a "pâte gélatineuse."

4. In Professor Miller's manual, which was the basis of Cloizeaux's, chalcedony is stated to appear to be a mixture of amorphous with crystalline silica! and its form taken no account of. Malachite might just as well have been described as a mixture of amorphous with crystalline carbonate of copper!

5. I will not, however, attempt to proceed farther in this difficult subject until Mr. Clifton Ward has time to continue his own observations. Perhaps I may persuade him to let me have a connected series of figured examples, from pure stellar quartz down to entirely fluent chalcedony, to begin the next volume of Deucalion with ;—but I must endeavour, in closing the present one, to give some available summary of its contents, and clearer idea of its purpose; and will only trespass so far on my friend's province as to lay before him, together with my readers, some points noted lately on another kind of semi-crystallization, which bear not merely on the domes of delicate chalcedony, and pyramids of microscopic quartz, but on the far-seen chalcedony of the Dôme du Goute, and the prismatic towers of the Cervin and dark peak of Aar.

CHAPTER XIV.

SCHISMA MONTIUM.

1. The index closing this volume of Deucalion, drawn up by myself, is made as short as possible, and classifies the contents of the volume so as to enable the reader to collect all notices of importance relating to any one subject, and to collate them with those in my former writings. That they need such assemblage from their desultory occurrence in the previous pages, is matter of sincere regret to me, but inevitable, since the writing of a systematic treatise was incompatible with the more serious work I had in hand, on greater subjects. The 'Laws of Fésole' alone might well occupy all the hours I can now permit myself in severe thought. But any student of intelligence may perceive that one inherent cause of the divided character of this book, is its function of advance in parallel columns over a wide field; seeing that, on no fewer than four subjects, respecting which geological theories and assertions have long been alike fantastic and daring, it has shown at least the necessity for revisal of evidence, and, in two cases, for reversal of judgment.

2. I say "it has shown," fearlessly; for at my time of life, every man of ordinary sense, and probity, knows what he has done securely, and what perishably. And during the last twenty years, none of my words have been set down untried; nor has any opponent succeeded in overthrowing a single sentence of them.

3. But respecting the four subjects above alluded to, (denudation, cleavage, crystallization, and elevation, as causes of mountain form,) proofs of the uncertainty, or even falseness, of current conceptions have been scattered at intervals through my writings, early and late, from 'Modern Painters' to the 'Ethics of the Dust:' and, with gradually increasing wonder at the fury of so-called 'scientific' speculation, I have insisted, year by year, on the undealt with, and usually undreamt of,

difficulties which lay at the threshold of secure knowledge in such matters;—trusting always that some ingenuous young reader would take up the work I had no proper time for, and follow out the investigations of which the necessity had been indicated. But I waited in vain; and the rough experiments made at last by myself, a year ago, of which the results are represented in Plate VI. of this volume, are actually the first of which there is record in the annals of geology, made to ascertain the primary physical conditions regulating the forms of contorted strata. The leisure granted me, unhappily, by the illness which has closed my relations with the University of Oxford, has permitted the pursuit of these experiments a little farther; but I must defer account of their results to the following volume, contenting myself with indicating, for conclusion of the present one, to what points of doubt in existing theories they have been chiefly directed.

4. From the examination of all mountain ground hitherto well gone over, one general conclusion has been derived, that wherever there are high mountains, there are hard rocks. Earth, at its strongest, has difficulty in sustaining itself above the clouds; and could not hold itself in any noble height, if knitted infirmly.

5. And it has farther followed, in evidence, that on the flanks of these harder rocks, there are yielding beds, which appear to have been, in some places, compressed by them into wrinkles and undulations;—in others, shattered, and thrown up or down to different levels. My own interest was excited, very early in life,* by the forms and fractures in the mountain groups of Savoy; and it happens that the undulatory action of the limestone beds on each shore of the Lake of Annecy,

* I well yet remember my father's rushing up to the drawing-room at Herne Hill, with wet and flashing eyes, with the proof in his hand of the first sentences of his son's writing ever set in type,—'Enquiries on the Causes of the Colour of the Water of the Rhone,' (Magazine of Natural History, September, 1834; followed next month by 'Facts and Considerations on the Strata of Mont Blanc, and on some Instances of Twisted Strata observable in Switzerland.' I was then fifteen.) My mother and I eagerly questioning the cause of his excitement,—"It's—it's—only *print*," said he! Alas! how much the 'only' meant!

and the final rupture of their outmost wave into the precipice of the Salève, present examples so clear, and so imposing, of each condition of form, that I have been led, without therefore laying claim to any special sagacity, at least into clearer power of putting essential questions respecting such phenomena than geologists of far wider experience, who have confused or amused themselves by collecting facts indiscriminately over vast spaces of ground. I am well convinced that the reader will find more profit in following my restricted steps; and satisfying, or dissatisfying himself, with precision, respecting forms of mountains which he can repeatedly and exhaustively examine.

6. In the uppermost figure in Plate VII., I have enlarged and coloured the general section given rudely above in Figure 1, page 12, of the Jura and Alps, with the intervening plain. The central figure is the southern, and the lowermost figure, which should be conceived as joining it on the right hand, the northern, series of the rocks composing our own Lake district, drawn for me with extreme care by the late Professor Phillips, of Oxford.

I compare, and oppose, these two sections, for the sake of fixing in the reader's mind one essential point of difference among many resemblances; but that they may not, in this comparison, induce any false impressions, the system of colour which I adopt in this plate, and henceforward shall observe, must be accurately understood.

7. At pages 93–94 above, I gave my reasons for making no endeavour, at the Sheffield Museum, to certify the ages of rocks. For the same reason, in practical sections I concern myself only with their nature and position; and colour granite pink, slate purple, and sandstone red, without inquiring whether the granite is ancient or modern,—the sand trias or pliocene, and the slate Wenlock or Caradoc; but with this much only of necessary concession to recognized method, as to colour with the same tint all rocks which unquestionably belong to the same great geological formation, and vary their mineralogical characters within narrow limits. Thus, since, in characteristic English sections, chalk may most conven-

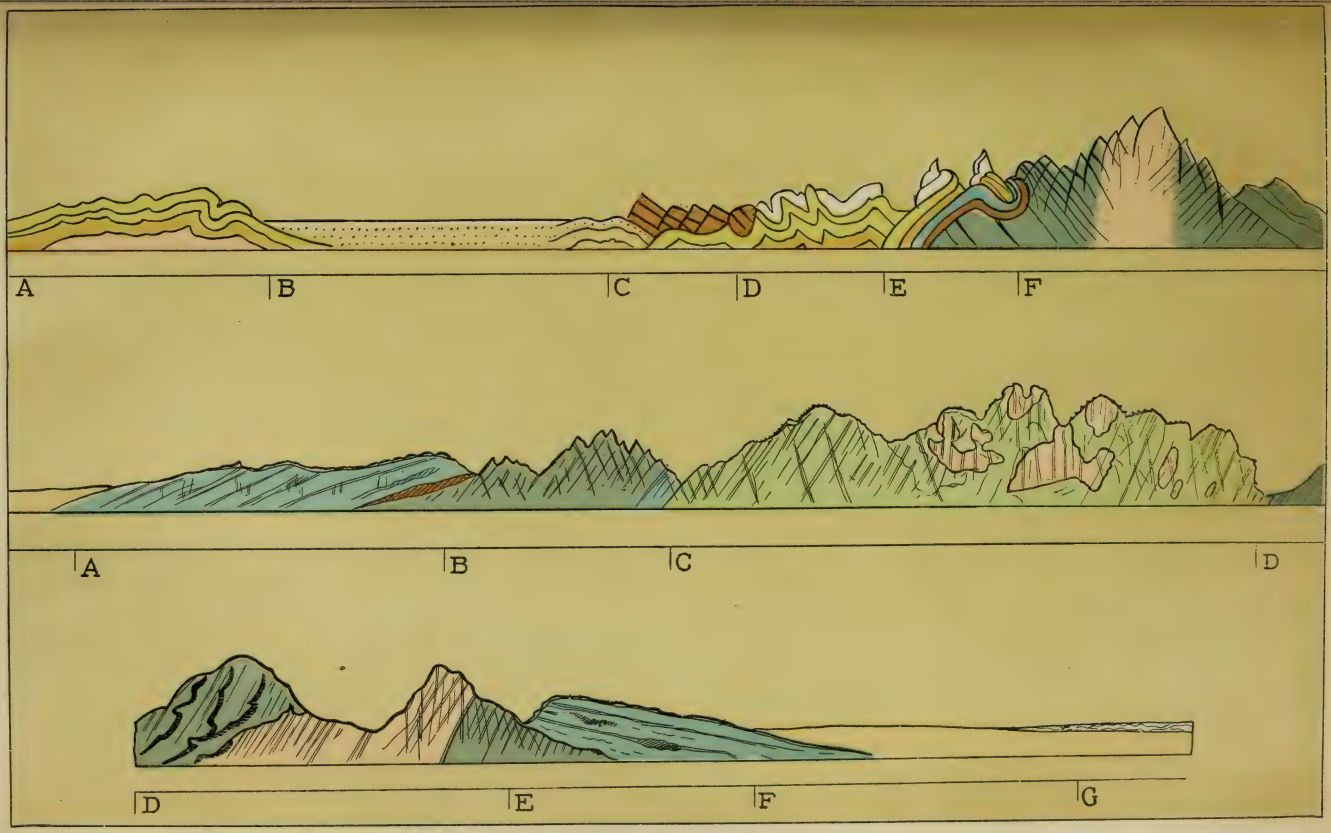


Plate VII

THE STRATA OF SWITZERLAND AND CUMBERLAND.

iently be expressed by leaving it white, and some of the upper beds of the Alps unquestionably are of the same period, I leave them white also, though their general colour may be brown or grey, so long as they retain cretaceous or marly consistence; but if they become metamorphic, and change into clay slate or gneiss, I colour them purple, whatever their historical relations may be.

8. And in all geological maps and sections given in 'Deucalion,' I shall limit myself to the definition of the twelve following formations by the twelve following colours. It is enough for any young student at first to learn the relations of these great orders of rock and earth:—once master of these, in any locality, he may split his beds into any complexity of finely laminated chronology he likes;—and if I have occasion to split them for him myself, I can easily express their minor differences by methods of engraving. But, primarily, let him be content in the recognition of these twelve territories of Demeter, by this following colour heraldry:—

9.

1. Granite will bear in the field,	Rose-red.
2. Gneiss and mica-slate	Rose-purple.
3. Clay-slate	Violet-purple.
4. Mountain limestone	Blue.
5. Coal measures and millstone grit	Grey.
6. Jura limestone	Yellow.
7. Chalk	White.
8. Tertiaries forming hard rock	Scarlet.
9. Tertiary sands and clays	Tawny.
10. Eruptive rocks, not definitely volcanic	Green.
11. Eruptive rocks, definitely volcanic, but at rest	Green, spotted red.
12. Volcanic rocks, active	Black, spotted red.

10. It will at once be seen by readers of some geological experience, that approximately, and to the degree possible,

these colours are really characteristic of the several formations; and they may be rendered more so by a little care in modifying the tints. Thus the 'scarlet' used for the tertiaries may be subdued as much as we please, to what will be as near a sober brown as we can venture without confusing it with the darker shades of yellow; and it may be used more pure to represent definitely red sandstones or conglomerates: while, again, the old red sands of the coal measures may be extricated from the general grey by a tint of vermilion which will associate them, as mineral substances, with more recent sand. Thus in the midmost section of Plate VII. this colour is used for the old red conglomerates of Kirby Lonsdale. And again, keeping pure light blue for the dated mountain limestones, which are indeed, in their emergence from the crisp turf of their pastures, grey, or even blue in shade, to the eye, a deeper blue may be kept for the dateless limestones which are associated with the metamorphic beds of the Alps; as for my own Coniston Silurian limestone, which may be nearly as old as Skiddaw.

11. The colour called 'tawny,' I mean to be as nearly that of ripe wheat as may be, indicating arable land, or hot prairie; while, in maps of northern countries, touched with points of green, it may pass for moorland and pasture: or, kept in the hue of pale vermilion, it may equally well represent desert alluvial sand. Finally, the avoidance of the large masses of fierce and frightful scarlet which render modern geological maps intolerable to a painter's sight, (besides involving such geographical incongruities as the showing Iceland in the colour of a red-hot coal;) and the substitution over all volcanic districts, of the colour of real greenstone, or serpentine, for one which resembles neither these, nor the general tones of dark colour either in lava or cinders, will certainly render all geological study less injurious to the eyesight, and less harmful to the taste.

12. Of the two sections in Plate VII., the upper one is arranged from Studer, so as to exhibit in one view the principal phenomena of Alpine structure according to that geologist. The cleavages in the central granite mass are given, however

on my own responsibility, not his. The lower section was, as aforesaid, drawn for me by my kind old friend Professor Phillips, and is, I doubt not, entirely authoritative. In all great respects, the sections given by Studer are no less so; but they are much ruder in drawing, and can be received only as imperfect summaries—perhaps, in their abstraction, occasionally involving some misrepresentation of the complex facts. For my present purposes, however, they give me all the data required.

13. It will instantly be seen, on comparing the two groups of rocks, that although nearly similar in succession, and both suggesting the eruptive and elevatory force of the granitic central masses, there is a wide difference in the manner of the action of these on the strata lifted by them. In the Swiss section, the softer rocks seem to have been crushed aside, like the ripples of water round any submersed object rising to the surface. In the English section, they seem to have undergone no such torsion, but to be lifted straight, as they lay, like the timbers of a gabled roof. It is true that, on the larger scale of the Geological Survey, contortions are shown at most of the faults in the Skiddaw slate; but, for the reasons already stated, I believe these contortions to be more or less conventionally represented; and until I have myself examined them, will not modify Professor Phillips' drawing by their introduction.

Some acknowledgment of such a structure is indeed given by him observably in the dark slates on the left in the lowermost section; but he has written under these undulatory lines "quartz veins," and certainly means them, so far as they are structural, to stand only for ordinary gneissitic contortion in the laminated mass, and not for undulating strata.

14. Farther. No authority is given me by Studer for dividing the undulatory masses of the outer Alps by any kind of cleavage-lines. Nor do I myself know examples of fissile structure in any of these mountain masses, unless where they are affected by distinctly metamorphic action, in the neighbourhood of the central gneiss or mica-schist. On the contrary, the entire courses of the Cumberland rock, from Kirby

Lonsdale to Carlisle, are represented by Professor Phillips as traversed by a perfectly definite and consistent cleavage throughout, dipping steeply south, in accurately straight parallel lines, and modified only, in the eruptive masses, by a vertical cleavage, characterizing the pure granite centres.

15. I wish the reader to note this with especial care, because the cleavage of secondary rock has been lately attributed, with more appearance of reason than modern scientific theories usually possess, to lateral pressure, acting in a direction perpendicular to the lamination. It seems, however, little calculated to strengthen our confidence in such an explanation, to find the Swiss rocks, which appear to have been subjected to a force capable of doubling up leagues of them backwards and forwards like a folded map, wholly without any resultant schistose structure; and the English rocks, which seem only to have been lifted as a raft is raised on a wave, split across, for fifty miles in succession, by foliate structures of the most perfect smoothness and precision.

16. It might indeed be alleged, in deprecation of this objection, that the dough or batter of which the Alps were composed, mostly calcareous, did not lend itself kindly to lamination, while the mud and volcanic ashes of Cumberland were of a slippery and unctuous character, easily susceptible of rearrangement under pressure. And this view receives strong support from the dextrous experiment performed by Professor Tyndall in 1856, and recorded, as conclusive, in 1872,* wherein, first warming some wax, then pressing it between two pieces of glass, and finally freezing it, he finds the congealed mass delicately laminated; and attributes its lamination to the "lateral sliding of the particles over each other."* But with his usual, and quite unrivalled, incapacity of following out any subject on the two sides of it, he never tells us, and never seems to have asked himself, how *far* the wax was flattened, and how far, therefore, its particles had been forced to slide;—nor, during the sixteen years between his first and final record of the experiment, does he seem ever to have used

* 'Forms of Water,' King and Co., 1872, p. 190.

any means of ascertaining whether, under the observed conditions, real compression of the substance of the wax had taken place at all! For if not, and the form of the mass was only altered from a lump to a plate, without any increase of its density, a less period for reflection than sixteen years might surely have suggested to Professor Tyndall the necessity, in applying his result to geological matters, of providing mountains which were to be squeezed in one direction, with room for expansion in another.

17. For once, however, Professor Tyndall is not without fellowship in his hesitation to follow the full circumference of this question. Among the thousands of passages I have read in the works even of the most careful and logical geologists,—even such as Humboldt and De Saussure,—I remember *not one* distinct statement* of the degree in which they supposed the lamination of any given rock to imply real increase of its density, or only the lateral extension of its mass.

18. And the student must observe that in many cases lateral extension of mass is precisely avoided by the very positions of rocks which are supposed to indicate the pressure

* As these sheets are passing through the press, I receive the following most important note from Mr. Clifton Ward: "With regard to the question whether cleavage is necessarily followed by a reduction in bulk of the body cleaved, the following cases may help us to form an opinion. *Crystalline* volcanic rocks (commonly called trap), as a rule, are not cleaved, though the beds, uncrystalline in character, above and below them, may be. When, however, a trap is highly vesicular, it is sometimes well cleaved. May we not, therefore, suppose that in a rock, *wholly* crystalline, the particles are too much interlocked to take up new positions? In a purely fragmentary rock, however, the particles seem to have more freedom of motion; their motion under pressure leads to a new and more parallel arrangement of particles, each being slightly flattened or pulled out along the planes of new arrangement. This, then, points to a diminution of bulk at any rate in a direction at right angles to the planes of cleavage. The tendency to new arrangement of particles *under pressure points to accommodation under altered circumstances of space.* In rocks composed of fragments, the interspaces, being for the most part larger than the intercrystalline spaces of a trap rock, more freely allow of movement and new arrangement."

sustained. In Mr. Woodward's experiment with sheets of paper, for instance, (above quoted, p. 16,*) there is neither increase of density nor extension of mass, in the sheets of paper. They remain just as thick as they were,—just as long and broad as they were. They are only altered in direction, and no more compressed, as they bend, than a flag is compressed by the wind that waves it. In my own experiments with dough, of course the dough was no more compressible than so much water would have been. Yet the language of the geologists who attribute cleavage to pressure might usually leave their readers in the notion that clay can be reduced like steam; and that we could squeeze the sea down to half its depth by first mixing mud with it! Else, if they really comprehended the changes of form rendered necessary by proved directions of pressure, and did indeed mean that the paste of primitive slate had been 'flattened out' (in Professor Tyndall's words) as a cook flattens out her pastry-crust with a rolling-pin, they would surely sometimes have asked themselves,—and occasionally taken the pains to tell their scholars,—where the rocks in question had been flattened to. Yet in the entire series of Swiss sections (upwards of a hundred) given by Studer in his Alpine Geology, there is no hint of such a difficulty having occurred to him;—none, of his having observed any actual balance between diminution of bulk and alteration of form in contorted beds;—and none, showing any attempt to distinguish mechanical from crystalline foliation. The cleavages are given rarely in any section, and always imperfectly.

19. In the more limited, but steadier and closer, work of Professor Phillips on the geology of Yorkshire, the solitary notice of "that very obscure subject, the cleavage of slate" is contained in three pages, (5 to 8 of the first chapter,) describing the structure of a single quarry, in which the author does not know, and cannot eventually discover, whether the

* There is a double mistake in the thirteenth line from the top in that page. I meant to have written, "from a length of four inches into the length of one inch,"—but I believe the real dimensions should have been "a foot crushed into three inches."

rock is stratified or not! I respect, and admire, the frankness of the confession; but it is evident that before any affirmation of value, respecting cleavages, can be made by good geologists, they must both ascertain many laws of pressure in viscous substances at present unknown; and describe a great many quarries with no less attention than was given by Professor Phillips to this single one.

20. The experiment in wax, however, above referred to as ingeniously performed by Professor Tyndall, is not adduced in the "Forms of Water" for elucidation of cleavage in rocks, but of riband structure in ice—(of which more presently). His first display of it, however, was I believe in the lecture delivered in 1856 at the Royal Institution,—this, and the other similar experiments recorded in the Appendix to the 'Glaciers of the Alps,' being then directed mainly to the confusion of Professor Sedgwick, in that the Cambridge geologist had—with caution—expressed an opinion that cleavage was a result of crystallization under polar forces.

21. Of that suggestion Professor Tyndall complimentarily observed that "it was a bold stretch of analogies," and condescendingly—that "it had its value,—it has drawn attention to the subject." Presently, translating this too vulgarly intelligible statement into his own sublime language, he declares of the theory in debate that it, and the like of it, are "a dynamic power which operates against intellectual stagnation." How a dynamic power differs from an undynamic one,—(and, presumably, also, a potestatic dynamis from an unpotestatic one;) and how much more scientific it is to say, instead of—that our spoon stirs our porridge,—that it "operates against the stagnation" of our porridge, Professor Tyndall trusts the reader to recognize with admiration. But if any stirring, or skimming, or other operation of a duly dynamic character, could have clarified from its scum of vanity the pease-porridge of his own wits, Professor Tyndall would have felt that men like the Cambridge veteran,—one of the very few modern men of science who possessed real genius,—stretch no analogies farther than they will hold; and, in this particular case, there were two facts, familiar to Sedgwick, and with which Pro-

fessor Tyndall manifests no acquaintance, materially affecting every question relating to cleavage structure.

22. The first, that all slates whatever, among the older rocks, are more or less metamorphic; and that all metamorphism implies the development of crystalline force. Neither the chiastolite in the slate of Skiddaw, nor the kyanite in that of St. Gothard, could have been formed without the exertion, through the whole body of the rock, of crystalline force, which, extracting some of its elements, necessarily modifies the structure of the rest. The second, that slate-quarries of commercial value, fortunately rare among beautiful mountains, owe their utility to the unusual circumstance of cleaving, over the quarryable space, practically in one direction only. But such quarryable spaces extend only across a few fathoms of crag, and the entire mass of the slate mountains of the world is cloven, not in one, but in half a dozen directions, each separate and explicit; and requiring, for their production on the pressure theory, the application of half a dozen distinct pressures, of which none shall neutralize the effect of any other! That six applications of various pressures at various epochs, might produce six cross cleavages, may be conceived without unpardonable rashness, and conceded without perilous courtesy; but before pursuing the investigation of this hexfoiled subject, it would be well to ascertain whether the cleavage of any rock whatever does indeed accommodate itself to the calculable variations of a single pressure, applied at a single time.

23. Whenever a bed of rock is bent, the substance of it on the concave side must be compressed, and the substance of it on the convex side, expanded. The degree in which such change of structure must take place may be studied at ease in one's arm-chair with no more apparatus than a stick of sealing-wax and a candle; and as soon as I am shown a bent bed of any rock with distinct lamination on its concave side, traceably gradated into distinct crevassing on its convex one, I will admit without farther debate the connection of foliation with pressure.

24. In the meantime, the delicate experiments by the con-

duct of which Professor Tyndall brought his audiences into what he is pleased to call "contact with facts" (in olden times we used to say 'grasp of facts'; modern science, for its own part prefers, not unreasonably, the term 'contact,' expressive merely of occasional collision with them,) must remain inconclusive. But if in the course of his own various 'contact with facts' Professor Tyndall has ever come across a bed of slate squeezed between two pieces of glass—or anything like them —I will thank him for a description of the locality. All metamorphic slates have been subjected assuredly to heat—probably to pressure; but (unless they were merely the shaly portions of a stratified group) the pressure to which they have been subjected was that of an irregular mass of rock ejected in the midst of them, or driven fiercely against them; and their cleavage—so far as it is indeed produced by that pressure, must be such as the iron of a target shows round a shell;—and not at all representable by a film of candle-droppings.

25. It is further to be observed,—and not without increasing surprise and increasing doubt,—that the experiment was shown, on the first occasion, to explain the lamination of slate, and, on the second, to explain the riband structure of ice. But there are no ribands in slate, and there is no lamination in ice. There are no regulated alternations of porous with solid substance in the one; and there are no constancies of fracture by plane surfaces in the other; moreover—and this is to be chiefly noted,—slate lamination is always straight; glacier banding always bent. The structure of the pressed wax might possibly explain one or other of these phenomena; but could not possibly explain both, and does actually explain neither.

26. That the arrangement of rock substance into fissile folia does indeed take place in metamorphic aluminous masses under some manner of pressure, has, I believe, been established by the investigations both of Mr. Sorby and of Mr. Clifton Ward. But the reasons for continuity of parallel cleavage through great extents of variously contorted beds;—for its almost uniform assumption of a high angle;—for its as uniform non-occurrence in horizontal laminæ under vertical pressure,

however vast;—for its total disregard of the forces causing upheaval of the beds;—and its mysteriously deceptive harmonies with the stratification, if only steep enough, of neighbouring sedimentary rocks, remain to this hour, not only unassigned, but unsought.

27. And it is difficult for me to understand either the contentment of geologists with this state of things, or the results on the mind of ingenuous learners, of the partial and more or less contradictory information hitherto obtainable on the subject. The section given in the two lower figures of Plate VII. was drawn for me, as I have already said, by my most affectionately and reverently remembered friend, Professor Phillips, of Oxford. It goes through the entire crest of the Lake district from Lancaster to Carlisle, the first emergent rock-beds being those of mountain limestone, A to B, not steeply inclined, but lying unconformably on the steeply inclined flags and grit of Furness Fells, B to C. In the depression at C lies Coniston Lake; then follow the masses of Coniston Old Man and Scawfell, C to D, sinking to the basin of Derwentwater just after the junction, at Grange, of their volcanic ashes with the Skiddaw slate. Skiddaw himself, and Carrock Fell, rise between D and E; and above E, at Caldbeck, again the mountain limestone appears in unconformable bedding, declining under the Trias of the plain of Carlisle, at the northern extremity of which a few rippled lines do service for the waves of Solway.

28. The entire ranges of the greater mountains, it will be seen, are thus represented by Professor Phillips as consisting of more or less steeply inclined beds, parallel to those of the Furness shales; and traversed by occasional cleavages at an opposite angle. But in the section of the Geological Survey, already referred to, the beds parallel to the Furness shales reach only as far as Wetherlam, and the central mountains are represented as laid in horizontal or slightly basin-shaped swirls of ashes, traversed by ejected trap, and divided by no cleavages at all, except a few vertical ones indicative of the Tilberthwaite slate quarries.

29. I think it somewhat hard upon me, now that I am sixty

years old, and short of breath in going up hills, to have to compare, verify for myself, and reconcile as I may, these entirely adverse representations of the classical mountains of England :—no less than that I am left to carry forward, in my broken leisure, the experiments on viscous motion instituted by James Forbes thirty years ago. For the present, however, I choose Professor Phillips's section as far the most accurately representative of the general aspect of matters, to my present judgment; and hope, with Mr. Clifton Ward's good help, to give more detailed drawings of separate parts in the next volume of Deucalion.

30. I am prepared also to find Professor Phillips's drawing in many respects justifiable, by my own former studies of the cleavage structure of the central Alps, which, in all the cases I have examined, I found to be a distinctly crystalline lamination, sometimes contorted according to the rock's own humour, fantastically as Damascus steel; but presently afterwards assuming inconceivable consistency with the untroubled repose of the sedimentary masses into whose company it had been thrust. The junction of the contorted gneiss through which the gorge of Trient is cleft, with the micaceous marble on which the tower of Martigny is built, is a transition of this kind within reach of the least adventurous traveller; and the junction of the gneiss of the Montanvert with the porous limestone which underlies it, is certainly the most interesting, and the most easily explored, piece of rock-fellowship in Europe. Yet the gneissitic lamination of the Montanvert has been attributed to stratification by one group of geologists, and to cleavage by another, ever since the valley of Chamouni was first heard of, and the only accurate drawings of the beds hitherto given are those published thirty years ago in 'Modern Painters.' I had hoped at the same time to contribute some mite of direct evidence to their elucidation, by sinking a gallery in the soft limestone under the gneiss, supposing the upper rock hard enough to form a safe roof; but a decomposing fragment fell, and so nearly ended the troubles, with the toil, of the old miner who was driving the tunnel, that I attempted no farther inquiries in that practical manner.

31. The narrow bed, curved like a sickle, and coloured vermilion, among the purple slate, in the uppermost section of Plate VII., is intended to represent the position of the singular band of quartzite and mottled schists, ("bunte schiefer,") which, on the authority of Studer's section at page 178 of his second volume, underlies, at least for some thousands of feet, the granite of the Jungfrau ; and corresponds, in its relation to the uppermost cliff of that mountain, with the subjacence of the limestone of Les Tines to the aiguilles of Chamouni. I have coloured it vermilion in order to connect it in the student's mind with the notable conglomerates of the Black Forest, through which their underlying granites pass into the Trias ; but the reversed position which it here assumes, and the relative dominance of the central mass of the Bernese Alps, if given by Studer with fidelity, are certainly the first structural phenomena which the geologists of Germany should benevolently qualify themselves to explain to the summer society of Interlachen. The view of the Jungfrau from the Castle of Manfred is probably the most beautiful natural vision in Europe ; but, for all that modern science can hitherto tell us, the construction of it is supernatural, and explicable only by the Witch of the Alps.

32. In the meantime I close this volume of Deucalion by noting firmly one or two letters of the cuneiform language in which the history of that scene has been written.

There are five conditions of rock cleavage which the student must accustom himself to recognize, and hold apart in his mind with perfect clearness, in all study of mountain form.

I. The Wave cleavage : that is to say, the condition of structure on a vast scale which has regulated the succession of summits. In almost all chains of mountains not volcanic, if seen from a rightly chosen point, some law of sequence will manifest itself in the arrangement of their eminences. On a small scale, the declining surges of pastoral mountain, from the summit of Helvellyn to the hills above Kendal, seen from any point giving a clear profile of them, on Wetherlam or the Old Man of Coniston, show a quite rhythmic, almost formal, order of ridged waves, with their steepest sides to the low

lands; for which the cause must be sought in some internal structure of the rocks, utterly untraceable in close section. On vaster scale, the succession of the aiguilles of Chamouni, and of the great central aiguilles themselves, from the dome of Mont Blanc through the Jorasses, to the low peak of the aiguille de Trient, is again regulated by a harmonious law of alternate cleft and crest, which can be studied rightly only from the far-distant Jura.

The main directions of this vast mountain tendency might always be shown in a moderately good model of any given district, by merely colouring all slopes of ground inclined at a greater angle than thirty degrees, of some darker colour than the rest. No slope of talus can maintain itself at a higher angle than this, (compare 'Modern Painters,' vol. iv., p. 318;) and therefore, while the mathematical laws of curvature by aqueous denudation, which were first ascertained and systematized by Mr. Alfred Tylor, will be found assuredly to regulate or modify the disposition of masses reaching no steeper angle, the cliffs and banks which exceed it, brought into one abstracted group, will always display the action of the wave cleavage on the body of the yet resisting rocks.

33. II. The Structural cleavage.

This is essentially determined by the arrangement of the plates of mica in crystalline rocks, or—where the mica is obscurely formed, or replaced by other minerals—by the sinuosities of their quartz veins. Next to the actual bedding, it is the most important element of form in minor masses of crag; but in its influence on large contours, subordinate always to the two next following orders of cleavage.

34. III. The Asphodeline cleavage;—the detachment, that is to say, of curved masses of crag more or less concentric, like the coats of an onion. It is for the most part transverse to the structural cleavage, and forms rounded domes and bending billows of smooth contour, on the flanks of the great foliated mountains, which look exactly as if they had been worn for ages under some river of colossal strength. It is far and away the most important element of mountain form in granitic and metamorphic districts.

35. IV. The Frontal cleavage. This shows itself only on the steep escarpments of sedimentary rock, when the cliff has been produced in all probability by rending elevatory force. It occurs on the faces of nearly all the great precipices in Savoy, formed of Jura limestone, and has been in many cases mistaken for real bedding. I hold it one of the most fortunate chances attending the acquisition of Brantwood, that I have within three hundred yards of me, as I write, jutting from beneath my garden wall, a piece of crag knit out of the Furness shales, showing frontal cleavage of the most definite kind, and enabling me to examine the conditions of it as perfectly as I could at Bonneville or Annecy.

36. V. The Atomic cleavage.

This is the mechanical fracture of the rock under the hammer, indicating the mode of coherence between its particles, irrespectively of their crystalline arrangements. The conchoidal fractures of flint and calcite, the raggedly vitreous fractures of quartz and corundum, and the earthy transverse fracture of clay slate, come under this general head. And supposing it proved that slaty lamination is indeed owing either to the lateral expansion of the mass under pressure, or to the filling of vacant pores in it by the flattening of particles, such a formation ought to be considered, logically, as the ultimate degree of fineness in the coherence of crushed substance ; and not properly a 'structure.' I should call this, therefore, also an 'atomic' cleavage.

37. The more or less rectilinear divisions, known as 'joints,' and apparently owing merely to the desiccation or contraction of the rock, are not included in the above list of cleavages, which is limited strictly to the characters of separation induced either by arrangements of the crystalline elements, or by violence in the methods of rock elevation or sculpture.

38. If my life is spared, and my purposes hold, the second volume of Deucalion will contain such an account of the hills surrounding me in this district, as shall be, so far as it is carried, trustworthy down to the minutest details in the exposition of their first elements of mountain form. And I am even fond enough to hope that some of the youths of Oxford, edu-

cated in its now established schools of Natural History and Art, may so securely and consistently follow out such a piece of home study by the delineation of the greater mountains they are proud to climb, as to redeem, at last, the ingenious nineteenth century from the reproach of having fostered a mountaineering club, which was content to approve itself in competitive agilities, without knowing either how an aiguille stood, or how a glacier flowed; and a Geological Society, which discoursed with confidence on the catastrophes of chaos, and the processes of creation, without being able to tell a builder how a slate split, or a lapidary how a pebble was coloured.

APPENDIX.

When I began Deucalion, one of the hopes chiefly connected with it was that of giving some account of the work done by the real masters and fathers of Geology. I must not conclude this first volume without making some reference, (more especially in relation to the subjects of inquiry touched upon in its last chapter,) to the modest life and intelligent labour of a most true pioneer in geological science, Jonathan Otley. Mr. Clifton Ward's sketch of the good guide's life, drawn up in 1877 for the Cumberland Association for the Advancement of Literature and Science, supplies me with the following particulars of it, deeply—as it seems to me—instructive and impressive.

He was born near Ambleside, at Nook House, in Loughrigg, January 19th, 1766. His father was a basket-maker; and it is especially interesting to me, in connection with the resolved retention of Latin as one of the chief elements of education in the system I am arranging for St. George's schools, to find that the Westmoreland basket-maker was a good Latin scholar; and united Oxford and Cambridge discipline for his son with one nobler than either, by making him study Latin and mathematics, while, till he was twenty-five, he worked as his father's journeyman at his father's handicraft. "He also cleaned all the clocks and watches in the neighbourhood, and showed himself very skilful in engraving upon copper-plates, seals and coin." In 1791 he moved to Keswick, and there lived sixty-five years, and died, ninety years old and upwards.

I find no notice in Mr. Ward's paper of the death of the father, to whose good sense and firmness the boy owed so much. There was yet a more woful reason for his leaving his

birthplace. He was in love with a young woman named Anne Youdale, and had engraved their names together on a silver coin. But the village blacksmith, Mr. Bowness, was also a suitor for the maiden's hand; and some years after, Jonathan's niece, Mrs. Wilson, asking him how it was that his name and Anne Youdale's were engraved together on the same coin, he replied, "Oh, the blacksmith beat me."* He never married, but took to mineralogy, watchmaking, and other consolatory pursuits, with mountain rambling—alike discursive and attentive. Let me not omit what thanks for friendly help and healthy stimulus to the earnest youth may be due to another honest Cumberland soul,—Mr. Crosthwaite. Otley was standing one day (before he removed to Keswick) outside the Crosthwaite Museum,† when he was accosted by its founder, and asked if he would sell a curious stick he held in his hand. Otley asked a shilling for it, the proprietor of the Museum stipulating to show him the collection over the bargain. From this time congenial tastes drew the two together as firm and staunch friends.

He lived all his life at Keswick, in lodgings,—recognized as "Jonathan Otley's, up the steps,"—paying from five shillings a week at first, to ten, in uttermost luxury; and being able to give account of his keep to a guinea, up to October 18, 1852,—namely, board and lodging for sixty-one years and one week, £1325; rent of room extra, fifty-six years, £164 10s.

*I doubt the orthography of the fickle maid's name, but all authority of antiquaries obliges me to distinguish it from that of the valley. I do so, however, still under protest—as if I were compelled to write Lord Lonsdale, 'Lownsdale,' or the Marquis of Tweeddale, 'Twaddle,' or the victorious blacksmith, 'Beauness.' The latter's family still retain the forge by Elter Water—an entirely distinct branch, I am told, from our blacksmith's of the Dale: *see* above, pp. 133, 134.

† In that same museum, my first collection of minerals—fifty specimens—total price, if I remember rightly, five shillings—was bought for me, by my father, of Mr. Crosthwaite. No subsequent possession has had so much influence on my life. I studied Turner at his own gallery, and in Mr. Windus's portfolios; but the little yellow bit of "copper ore from Coniston," and the "Garnets" (I never could see more than one!) from Borrowdale, were the beginning of science to me which never could have been otherwise acquired.

Total keep and roof overhead, for the sixty usefullest of his ninety years, £1489 10*s*.

Thus housed and fed, he became the friend, and often the teacher, of the leading scientific men of his day,—Dr. Dalton the chemist, Dr. Henry the chemist, Mr. Farey the engineer, Airy the Astronomer Royal, Professor Phillips of Oxford, and Professor Sedgwick of Cambridge. He was the first accurate describer and accurate map-maker of the Lake district; the founder of the geological divisions of its rocks,—which were accepted from him by Sedgwick, and are now finally confirmed;—and the first who clearly defined the separation between bedding, cleavage, and joint in rock,—hence my enforced notice of him, in this place. Mr. Ward's Memoir gives examples of his correspondence with the men of science above named: both Phillips and Sedgwick referring always to him in any question touching Cumberland rocks, and becoming gradually his sincere and affectionate friends. Sedgwick sate by his death-bed.

I shall have frequent occasion to refer to his letters, and to avail myself of his work. But that work was chiefly crowned in the example he left—not of what is vulgarly praised as self-*help*, (for every noble spirit's watchword is "God us ayde")—but of the rarest of mortal virtues, self-*possession*. "In your patience, possess ye your souls."

I should have dwelt at greater length on the worthiness both of the tenure and the treasure, but for the bitterness of my conviction that the rage of modern vanity must destroy in our scientific schoolmen, alike the casket, and the possession.

DEUCALION.

VOL. II.

CHAPTER I.

LIVING WAVES.

1. The opening of the second volume of Deucalion with a Lecture on Serpents may seem at first a curiously serpentine mode of advance towards the fulfilment of my promise that the said volume should contain an account of the hills surrounding me at Coniston, (above, vol. i., p. 168, § 38). But I am obliged now in all things to follow in great part the leadings of circumstance: and although it was only the fortuitous hearing of a lecture by Professor Huxley which induced me to take up at present the materials I had by me respecting snake motion, I believe my readers will find their study of undulatory forces dealt through the shattered vertebræ of rocks, very materially enlivened, if not aided, by first observing the transitions of it through the adjusted vertebræ of the serpent. I would rather indeed have made this the matter of a detached essay, but my distinct books are far too numerous already; and, if I could only complete them to my mind, would in the end rather see all of them fitted into one colubrine chain of consistent strength, than allowed to stand in any broken or diverse relations.

There are, however, no indications in the text of the lecture itself of its possible use in my geological work. It was written as briefly and clearly as I could, for its own immediate purpose: and is given here, as it was delivered, with only the insertion of the passages I was forced to omit for want of time.

2. The lecture, as it stands, was, as I have just said, thrown

together out of the materials I had by me; most of them for a considerable time; and with the help of such books as I chanced to possess,—chiefly, the last French edition of Cuvier, —Dr. Russell's Indian Serpents,—and Bell's British Reptiles. Not until after the delivery of the lecture for the second time, was I aware of the splendid work done recently by Dr Gunther, nor had I ever seen drawings of serpents for a moment comparable, both in action and in detail of scale, to those by Mr. Ford which illustrate Dr. Gunther's descriptions; or, in colour, and refinement of occasional action, to those given in Dr. Fayrer's Thanatophidia of India. The reader must therefore understand that anything generally said, in the following lecture, of modern scientific shortcoming, or error, is not to be understood as applying to any publication by either of these two authors, who have, I believe, been the first naturalists to adopt the artistically and mathematically sound method of delineation by plan and profile; and the first to represent serpent action in true lines, whether of actual curve, or induced perspective.

What follows, then, is the text of what I read, or, to the best of my memory, spoke, at the London Institution.

3. In all my lectures on Natural History at Oxford I virtually divided my subject always into three parts, and asked my pupils, first, to consider what had been beautifully thought about the creature; secondly, what was accurately known of it; thirdly, what was to be wisely asked about it.

First, you observe, what was, or had been, beautifully thought about it; the effect of the creature, that is to say, during past ages, on the greatest human minds. *This*, it is especially the business of a gentleman and a scholar to know. It is a king's business, for instance, to know the meaning of the legend of the basilisk, the King of Serpents, who killed with a look, in order that he may not himself become like a basilisk. But that kind of knowledge would be of small use to a viper-catcher.

Then the second part of the animal's history is—what is truly known of it, which one usually finds to be extremely little.

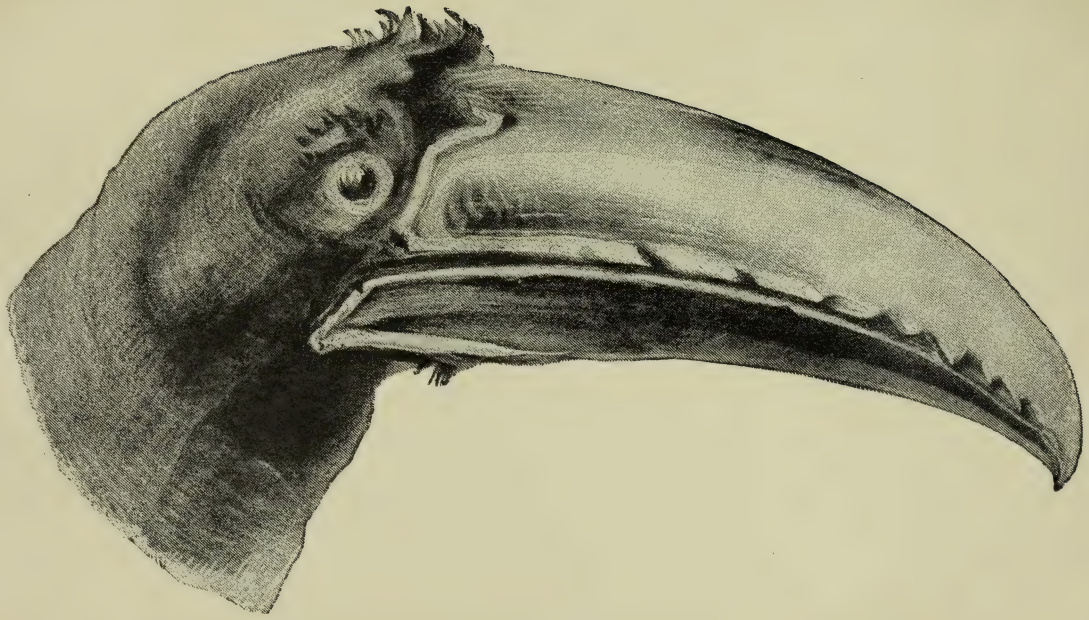


PLATE VIII.—"DEVELOPMENT." CROCODILE LATENT IN TOUCAN.

And the third part of its history will be—what remains to be asked about it—what it now behoves us, or will be profitable to us, to discover.

4. It will perhaps be a weight off your minds to be assured that I shall waive to-night the first part of the subject altogether;—except so far as thoughts of it may be suggested to you by Mr. Severn's beautiful introductory diagram,* and by the references I have to make to it, though shown for the sake of the ivy, not the Eve,—its subject being already explained in my Florentine Guide to the Shepherd's Tower. But I will venture to detain you a few moments while I point out how, in one great department of modern science, past traditions may be used to facilitate, where at present they do but encumber, even the materialistic teaching of our own day.

5. When I was furnishing Brantwood, a few years ago, I indulged myself with two bran-new globes, brought up to all the modern fine discoveries. I find, however, that there's so much in them that I can see nothing. The names are too many on the earth, and the stars too crowded in the heaven. And I am going to have made for my Coniston parish school a series of drawings in dark blue, with golden stars, of one constellation at a time, such as my diagram No. 2, with no names written to the stars at all. For if the children don't know their names without print on their diagram, they won't know them without print on the sky. Then there must be a school-manual of the constellations, which will have the legend of each told as simply as a fairy tale; and the names of the chief stars given on a map of them, corresponding to the blue diagram,—both of course drawn as the stars are placed in the sky; or as they would be seen on a concave celestial globe, from the centre of it. The having to look down on the stars from outside of them is a difficult position for children to comprehend, and not a very scientific one, even when comprehended.

6. But to do all this rightly, I must have better outlines than those at present extant. The red diagram, No. 3, which

* The Creation of Eve, bas-relief from the tower of Giotto. The photograph may be obtained from Mr. Ward.

has I hope a little amused you, more than frightened, is an enlargement of the outline given on my new celestial globe, to the head of the constellation Draco. I need not tell you that it is as false to nature as it is foolish in art; and I want you to compare it with the uppermost snake head in No. 4, because the two together will show you in a moment what long chapters of 'Modern Painters' were written to explain,—how the real faculty of imagination is always true, and goes straight to its mark: but people with no imagination are always false, and blunder or drivel about their mark. That red head was drawn by a man who didn't know a snake from a sausage, and had no more imagination in him than the chopped pork of which it is made. Of course he didn't know that, and with a scrabble of lines this way and the other, gets together what he thinks an invention—a knot of gratuitous lies, which you contentedly see portrayed as an instrument of your children's daily education. While—two thousand and more years ago—the people who had imagination enough to believe in Gods, saw also faithfully what was to be seen in snakes; and the Greek workman gives, as you see in this enlargement of the silver drachma of Phæstus, with a group of some six or seven sharp incisions, the half-dead and yet dreadful eye, the flat brow, the yawning jaw, and the forked tongue, which are an abstract of the serpent tribe for ever and ever.

And I certify you that all the exhibitions they could see in all London would not teach your children so much of art as a celestial globe in the nursery, designed with the force and the simplicity of a Greek vase.

7. Now, I have done alike with myths and traditions; and perhaps I had better forewarn you, in order, what I am next coming to. For, after my first delivery of this lecture, one of my most attentive hearers, and best accustomed pupils, told me that he had felt it to be painfully unconnected,—with much resultant difficulty to the hearer in following its intention. This is partly inevitable when one endeavours to get over a great deal of ground in an hour; and indeed I have been obliged, as I fastened the leaves together, to cut out sundry sentences of adaptation or transition—and run my

bits of train all into one, without buffers. But the actual divisions of what I have to say are clearly jointed for all that; and if you like to jot them down from the leaf I have put here at my side for my own guidance, these are the heads of them:—

I. Introduction—Imaginary Serpents.
II. The Names of Serpents.
III. The Classification of Serpents.
IV. The Patterns of Serpents.
V. The Motion of Serpents.
VI. The Poison of Serpents.
VII. Caution, concerning their Poison.
VIII. The Wisdom of Serpents.
IX. Caution, concerning their Wisdom.

It is not quite so bad as the sixteenthly, seventeenthly, and to conclude, of the Duke's chaplain, to Major Dalgetty; but you see we have no time to round the corners, and must get through our work as straightly as we may.

We have got done already with our first article, and begin now with the names of serpents; of which those used in the great languages, ancient and modern, are all significant, and therefore instructive, in the highest degree.

8. The first and most important is the Greek 'ophis,' from which you know the whole race are called, by scientific people, ophidia. It means the thing that sees all around; and Milton is thinking of it when he makes the serpent, looking to see if Eve be assailable, say of himself, "Her husband, *for I view far round*, not near." Satan says that, mind you, in the person of the Serpent, to whose faculties, in its form, he has reduced himself. As an angel, he would have *known* whether Adam was near or not: in the serpent, he has to look and see. This, mind you further, however, is Miltonic fancy, not Mosaic theology;—it is a poet and a scholar who speaks here,—by no means a prophet.

9. Practically, it has never seemed to me that a snake *could* see far round, out of the slit in his eye, which is drawn large

for you in my diagram of the rattlesnake ;* but either he or the puffadder, I have observed, seem to see with the backs of their heads as well as the fronts, whenever I am drawing them. You will find the question entered into at some length in my sixth lecture in the 'Eagle's Nest' ; and I endeavoured to find out some particulars of which I might have given you assurance to-night, in my scientific books; but though I found pages upon pages of description of the scales and wrinkles about snakes' eyes, I could come at no account whatever of the probable range or distinctness in the sight of them ; and though extreme pains had been taken to exhibit, in sundry delicate engravings, their lachrymatory glands and ducts, I could neither discover the occasions on which rattlesnakes wept, nor under what consolations they dried their eyes.

10. Next for the word dracon, or dragon. We are accustomed to think of a dragon as a winged and clawed creature ; but the real Greek dragon, Cadmus's or Jason's, was simply a serpent, only a serpent of more determined vigilance than the ophis, and guardian therefore of fruit, fountain, or fleece. In that sense of guardianship, not as a protecter, but as a sentinel, the name is to be remembered as well fitted for the great Greek lawgiver.

The dragon of Christian legend is more definitely malignant, and no less vigilant. You will find in Mr. Anderson's supplement to my 'St. Mark's Rest,' "The Place of Dragons," a perfect analysis of the translation of classic into Christian tradition in this respect.

11. III. Anguis. The strangling thing, passing into the French 'angoisse' and English 'anguish' ; but we have never taken this Latin word for our serpents, because we have none of the strangling or constrictor kind in Europe. It is always used in Latin for the most terrible forms of snake, and has been, with peculiar infelicity, given by scientific people to the most innocent, and especially to those which can't strangle

* See the careful drawing of the eye of Daboia Russellii, Thanatophidia, p. 14.

anything. The 'Anguis fragilis' breaks like a tobacco-pipe; but imagine how disconcerting such an accident would be to a constrictor!

12. IV. Coluber, passing into the French, 'couleuvre,' a grandly expressive word. The derivation of the Latin one is uncertain, but it will be wise and convenient to reserve it for the expression of coiling. Our word 'coil,' as the French 'cueillir,' is from the Latin 'colligere,' to collect; and we shall presently see that the way in which a snake 'collects' itself is no less characteristic than the way in which it diffuses itself.

13. V. Serpens. The winding thing. This is the great word which expresses the progressive action of a snake, distinguishing it from all other animals; or, so far as modifying the motion of others, making them in that degree serpents also, as the elongated species of fish and lizard. It is the principal object of my lecture this evening to lay before you the law of this action, although the interest attaching to other parts of my subject has tempted me to enlarge on them so as to give them undue prominence.

14. VI. Adder. This Saxon word, the same as nieder or nether, 'the grovelling thing,' was at first general for all serpents, as an epithet of degradation, 'the deaf adder that stoppeth her ears.' Afterwards it became provincial, and has never been accepted as a term of science. In the most scholarly late English it is nearly a synonym with 'viper,' but that word, said to be a contraction for vivipara, bringing forth the young alive, is especially used in the New Testament of the Pharisees, who compass heaven and earth to make one proselyte. The Greek word used in the same place, echidna, is of doubtful origin, but always expresses treachery joined with malice.

15. VII. Snake. German, 'schlange,' the crawling thing; and with some involved idea of sliminess, as in a snail. Of late it has become partly habitual, in ordinary English, to use it for innocent species of serpents, as opposed to venomous; but it is the strongest and best general term for the entire race; which race, in order to define clearly, I must now enter

into some particulars respecting classification, which I find little announced in scientific books.

16. And here I enter on the third division of my lecture, which must be a disproportionately long one, because it involves the statement of matters important in a far wider scope than any others I have to dwell on this evening. For although it is not necessary for any young persons, nor for many old ones, to know, even if they *can* know, anything about the origin or development of species, it is vitally necessary that they should know what a species *is*, and much more what a genus or (a better word) *gens*, a race, of animals is.

17. A gens, race, or kinship, of animals, means, in the truth of it, a group which can do some special thing nobly and well. And there are always varieties of the race which do it in different styles,—an eagle flies in one style, a windhover in another, but both gloriously,—they are 'Gentiles'—gentlemen creatures, well born and bred. So a trout belongs to the true race, or gens, of fish: he can swim perfectly; so can a dolphin, so can a mackerel: they swim in different styles indeed, but they belong to the true kinship of swimming creatures.

18. Now between the gentes, or races, and between the species, or families, there are invariably links—mongrel creatures, neither one thing nor another,—but clumsy, blundering, hobbling, misshapen things. You are always thankful when you see one that you are not *it*. They are, according to old philosophy, in no process of development up or down, but are necessary, though much pitiable, where they are. Thus between the eagle and the trout, the mongrel or needful link is the penguin. Well, if you ever saw an eagle or a windhover flying, I am sure you must have sometimes wished to be a windhover; and if ever you saw a trout or a dolphin, swimming, I am sure, if it was a hot day, you wished you could be a trout. But did ever anybody wish to be a penguin?

So, again, a swallow is a perfect creature of a true gens; and a field-mouse is a perfect creature of a true gens; and between the two you have an accurate mongrel—the bat

Well, surely some of you have wished, as you saw them glancing and dipping over lake or stream, that you could for half an hour be a swallow: there have been humble times with myself when I could have envied a field-mouse. But did ever anybody wish to be a bat?

19. And don't suppose that you can invert the places of the creatures, and make the gentleman of the penguin, and the mongrel of the windhover,—the gentleman of the bat, and mongrel of the swallow. All these living forms, and the laws that rule them, are parables, when once you can read; but you can only read them through love, and the sense of beauty; and some day I hope to plead with you a little, of the value of that sense, and the way you have been lately losing it. But as things are, often the best way of explaining the nature of any one creature is to point out the other creatures with whom it is connected, through some intermediate form of degradation. There are almost always two or three, or more, connected gentes, and between each, some peculiar manner of decline and of reascent. Thus, you heard Professor Huxley explain to you that the true snakes were connected with the lizards through helpless snakes, that break like withered branches; and sightless lizards, that have no need for eyes or legs. But there are three other great races of life, with which snakes are connected in other and in yet more marvellous ways. And I do not doubt being able to show you, this afternoon, the four quarters, or, as astrologers would say, the four houses, of the horizon of serpent development, in the modern view, or serpent relation, in the ancient one. In the first quarter, or house, of his nativity, a serpent is, as Professor Huxley showed you, a lizard that has dropped his legs off. But in the second quarter, or house, of his nativity, I shall show you that he is also a duck that has dropped her wings off. In the third quarter, I shall show you that he is a fish that has dropped his fins off. And in the fourth quarter of ascent, or descent, whichever you esteem it, that a serpent is a honeysuckle, with a head put on.

20. The lacertine relations having been explained to you in the preceding lecture by Professor Huxley, I begin this even-

ing with the Duck. I might more easily, and yet more surprisingly, begin with the Dove; but for time-saving must leave your own imaginations to trace the transition, easy as you may think it, from the coo to the quack, and from the walk to the waddle. Yet that is very nearly one-half the journey. The bird is essentially a singing creature, as a serpent is a mute one; the bird is essentially a creature singing for love, as a puffadder is one puffing for anger; and in the descent from the sound which fills that verse of Solomon's Song, "The time of the singing of birds is come, and the voice of the turtle is heard in our land," to the recollection of the last flock of ducks which you saw disturbed in a ditch, expressing their dissatisfaction in that peculiar monosyllable which from its senselessness has become the English expression for foolish talk,* you have actually got down half-way; and in the next flock of geese whom you discompose, might imagine at first you had got the whole way, from the lark's song to the serpent's hiss.

21. But observe, there is a variety of instrumentation in hisses. Most people fancy the goose, the snake, and we ourselves, are alike in the manner of that peculiar expression of opinion. But not at all. Our own hiss, whether the useful and practical ostler's in rubbing down his horse, or that omnipotent one which—please do not try on me just now!—are produced by the pressure of our soft round tongues against our teeth. But neither the goose nor snake can hiss that way, for a goose has got no teeth, to speak of, and a serpent no tongue, to speak of. The sound which imitates so closely our lingual hiss is with them only a vicious and vindictive sigh,—the general disgust which the creature feels at the sight of us expressed in a gasp. Why do you suppose the puffadder is called puffy? † Simply because he swells himself up to hiss, just as Sir Gorgius Midas might do to scold his footmen, and then actually and literally 'expires' with rage,

* The substantive 'quack' in its origin means a person who quacks,—i.e., talks senselessly; see Johnson.

† In more graceful Indian metaphor, the 'Father of Tumefaction.'—(Note from a friend.)

sending all the air in his body out at you in a hiss. In a quieter way, the drake and gander do the same thing; and we ourselves do the same thing under nobler conditions, of which presently.

22. But now, here's the first thing, it seems to me, we've got to ask of the scientific people, what use a serpent has for his tongue, since it neither wants it to talk with, to taste with, to hiss with, nor, so far as I know, to lick with,* and least of all to sting with,—and yet, for people who do not know the creature, the little vibrating forked thread, flashed out of its mouth, and back again, as quick as lightening, is the most threatening part of the beast; but what is the use of it? Nearly every other creature but a snake can do all sorts of mischief with its tongue. A woman worries with it, a chameleon catches flies with it, a snail files away fruit with it, a hummingbird steals honey with it, a cat steals milk with it, a pholas digs holes in rocks with it, and a gnat digs holes in *us* with it; but the poor snake cannot do any manner of harm with it whatsoever; and what is *his* tongue forked for?

23. I must leave you to find out that at your leisure; and to enter at your pleasure into the relative anatomical questions respecting forms of palate, larynx, and lung, in the dove, the swan, the goose, and the adder,—not unaccompanied by serpentine extension and action in the necks of the hissing birds, which show you what, so to speak, Nature is thinking of. These mechanical questions are all—leather and prunella, or leather and catgut;—the *moral* descent of the temper and meaning in the sound, from a murmur of affection to a gasp of fury, is the real transition of the creature's being. You will find in Kinglake's account of the charge of the Grays in the battle of Balaclava, accurate record of the human murmur of long-restrained rage, at last let loose; and may reflect, also at your leisure, on the modes of political development which change a kindly Scot into a fiery dragon.

24. So far of the fall of the bird-angels from song to hiss:

*I will not take on me to contradict, but I don't in the least believe, any of the statements about serpents licking their prey before they swallow it.

next consider for a minute or two the second phase of catastrophe—from walk to waddle. Walk,—or, in prettier creatures still, the run. Think what a descent it is, from the pace of the lapwing, like a pretty lady's,—"Look, where Beatrice, like a lapwing, runs;" or of the cream-coloured courser * of the African desert, whom you might yourselves see run, on your own downs, like a little racehorse, if you didn't shoot it the moment it alighted there,—to the respectable, but, to say the least, unimpressive, gait from which we have coined the useful word to 'waddle.' Can you remember exactly how a duck does walk? You can best fancy it by conceiving the body of a large barrel carried forward on two short legs, and rolling alternately to each side at every step. Once watch this method of motion attentively, and you will soon feel how near you are to dispensing with legs altogether, and getting the barrel to roll along by itself in a succession of zigzags.

25. Now, put the duck well under water, and he *does* dispense with his legs altogether.

There is a bird who—my good friend, and boat-builder, Mr. Bell, tells me—once lived on Coniston Water, and sometimes visits it yet, called the saw-bill duck, who is the link, on the ducky side, between the ducks and divers: his shape on the whole is a duck's, but his habits are a diver's,—that is to say, he lives on fish, and he catches them deep under water—swimming, under the surface, a hundred yards at a time.

26. We do not at all enough dwell upon this faculty in aquatic birds. Their feet are only for rowing—not for diving. Those little membranous paddles are no use whatever, once under water. The bird's full strength must be used in diving: he dives with his wings—literally flies under water with his wings;—the great northern diver, at a pace which a well-manned boat can't keep up with. The stroke for progress, observe, is the same as in the air; only in flying under water, the bird has to keep himself down, instead of keeping himself up, and strikes up with the wing instead of down. Well, the great divers hawk at fish this way, and become themselves fish, or saurians, the wings acting for the time as true fins, or paddles

* Cursorius isabellinus (Meyer), Gallicus (Gould).

And at the same time, observe, the head takes the shape, and receives the weapons, of the fish-eating lizard.

Magnified in the diagram to the same scale, this head of the saw-bill duck (No. 5) is no less terrible than that of the gavial, or fish-eating crocodile of the Ganges. The gavial passes, by the mere widening of the bones of his beak, into the true crocodile,—the crocodile into the serpentine lizard. I drop my duck's wings off through the penguin; and its beak being now a saurian's, I have only to ask Professor Huxley to get rid of its feet for me, and my line of descent is unbroken, from the dove to the cobra, except at the one point of the gift of poison.

27. An important point, you say? Yes; but one which the anatomists take small note of. Legs, or no legs, are by no means the chief criterion of lizard from snake. Poison, or no poison, is a far more serious one. Why should the mere fact of being quadruped, make the creature chemically innocent? Yet no lizard has ever been recognized as venomous.

28. A less trenchant, yet equally singular, law of distinction is found in the next line of relationship we have to learn, that of serpents with fish.

The first quite sweeping division of the whole serpent race is into water serpents and land serpents.* A large number, indeed, like damp places; and I suppose all serpents who ever saw water can swim; but still fix in your minds the intense and broad distinction between the sand asp, which is so fond of heat that if you light a real fire near him he will instantly wriggle up to it and burn himself to death in the ashes, and the water hydra, who lives in the open, often in the deep sea, and

* Dr. Gunther's division of serpents, ('Reptiles of British India,' p. 166,) the most rational I ever saw in a scientific book, is into five main kinds: burrowing snakes, ground snakes, and tree snakes, on the land; and fresh-water snakes and sea snakes, in the water.

All the water snakes are viviparous; and I believe all the salt-water ones venomous. Of the fresh-water snakes, Dr. Gunther strongly says, "none are venomous," to my much surprise; for I have an ugly recollection of the black river viper in the Zoological Gardens, and am nearly certain that Humboldt speaks of some of the water serpents of Brazil as dangerous.

though just as venomous as the little fiery wretch, has the body flattened vertically at the tail so as to swim exactly as eels do.

29. Not that I am quite sure that even those who go oftenest to Eel Pie Island quite know how eels *do* swim, and still less how they walk; nor, though I have myself seen them doing it, can I tell you how they manage it. Nothing in animal instinct or movement is more curious than the way young eels get up beside the waterfalls of the Highland streams. They get first into the jets of foam at the edge, to be thrown ashore by them, and then wriggle up the smooth rocks—heaven knows how. If you like, any of you, to put on greased sacks, with your arms tied down inside, and your feet tied together, and then try to wriggle up after them on rocks as smooth as glass, I think even the skilfulest members of the Alpine Club will agree with me as to the difficulty of the feat; and though I have watched them at it for hours, I do not know how much of serpent, and how much of fish, is mingled in the motion. But observe, at all events, there is no walking here on the plates of the belly: whatever motion is got at all, is by undulation of body and lash of tail: so far as by undulation of body, serpentine; so far as by lash of tail, fishy.

30. But the serpent is in a more intimate sense still, a fish that has dropped its fins off. All fish poison is in the fins or tail, not in the mouth. There are no venomous sharks, no fanged pikes; but one of the loveliest fishes of the south coast, and daintiest too when boiled, is so venomous in the fin, that when I was going eagerly to take the first up that came on the fishing-boat's deck with the mackerel line, in my first day of mackerel fishing, the French pilot who was with me caught hold of my arm as eagerly as if I had been going to lay hold of a viper.

Of the common medusa, and of the sting ray, you know probably more than I do: but have any of us enough considered this curious fact; (have any of you seen it stated clearly in any book of natural history?) that throughout the whole fish race,—which, broadly speaking, pass the whole of their existence in one continual gobble,—you never find any

poison put into the teeth ; and throughout the whole serpent race, never any poison put into the horns, tail, scales, or skin ?

31. Besides this, I believe the aquatic poisons are for the most part black ; serpent poison invariably white ; and, finally, that fish poison is only like that of bees or nettles, numbing and irritating, but not deadly ; but that the moment the fish passes into the hydra, and the poison comes through the teeth, the bite is mortal. In these senses, and in many others, (which I could only trace by showing you the undulatory motion of fins in the seahorse, and of body in the sole,) the serpent is a fish without fins.

32. Now, thirdly, I said that a serpent was a honeysuckle with a head *put on.* You perhaps thought I was jesting ; but nothing is more mysterious in the compass of creation than the relation of flowers to the serpent tribe,—not only in those to which, in 'Proserpina,' I have given the name Draconidæ, and in which there is recognized resemblance in their popular name, Snapdragon, (as also in the speckling of the Snake's-head Fritillary,) but much more in those carnivorous, insect-eating, and monstrous, insect-begotten, structures, to which your attention may perhaps have been recently directed by the clever caricature of the possible effects of electric light, which appeared lately in the 'Daily Telegraph.' But, seven hundred years ago, to the Florentine, and three thousand years ago, to the Egyptian and the Greek, the mystery of that bond was told in the dedication of the ivy to Dionysus, and of the dragon to Triptolemus. Giotto, in the lovely design which is to-night the only relief to your eyes, thought the story of temptation enough symbolized by the spray of ivy round the hazel trunk ; and I have substituted, in my definition, the honeysuckle for the ivy, because, in the most accurate sense, the honeysuckle is an 'anguis'—a strangling thing. The ivy stem increases with age, without compressing the tree trunk, any more than the rock, that it adorns ; but the woodbine retains, to a degree not yet measured, but almost, I believe, after a certain time, unchanged, the first scope of its narrow contortion ; and the growing wood of the stem it has seized is contorted with it, and at last paralyzed and killed.

That there is any essential difference in the spirit of life which gives power to the tormenting tendrils, from that which animates the strangling coils, your recent philosophy denies, and I do not take upon me to assert. The serpent *is* a honeysuckle * with a head put on; and perhaps some day, in the zenith of development, you may see a honeysuckle getting so much done for it.

33. It is, however, more than time for me now to approach the main parts of our subject, the characteristics of perfect serpent nature in pattern, motion, and poison. First, the pattern—*i.e.*, of their colours, and the arranged masses of them. That, the scientific people always seem to think a matter of no consequence; but to practical persons like me, it is often of very primal consequence to know a viper when they see it, which they can't conveniently, except by the pattern. The scientific people count the number of scales between its eyes and its nose, and inform you duly of the amount; but then a real viper won't stand still for you to count the scales between his eyes and his nose; whereas you can see at a glance, what to us Londoners, at least, should surely be an interesting fact—that it has a pretty letter H on the top of its head (Diag. No. 6). I am a true Cockney myself,—born within ring of Bow; and it is impressive to me thus to see such a development of our dropped Hs. Then, the wavy zigzag down the back, with the lateral spots—one to each bend, are again unmistakable; and a pretty general type of the kind of pattern which makes the poets and the story-tellers, when they need one epithet only, speak always of the 'spotted snake.' Not but that a thrush or a woodpecker are much more spotty than any snakes, only they're a great deal more than that, while the snake can often only be known from the gravel he lies on by the comparative symmetry of his spots.

34. But, whether spotted, zigzagged, or blotched with re-

* Farther note was here taken of the action of the blossoms of the cranberry, myrtilla regina, etc., for more detailed account of which (useless in this place without the diagram) the reader is referred to the sixth number of 'Proserpina.'

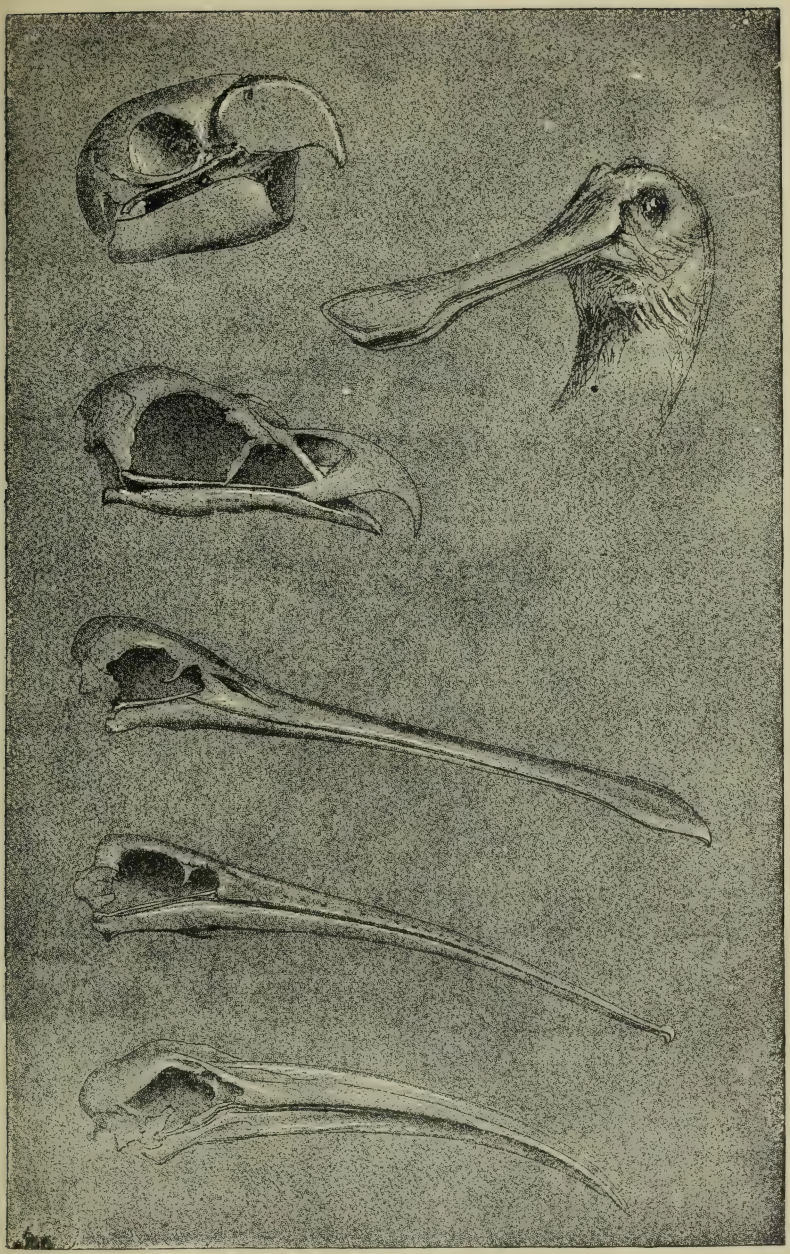


PLATE IX.—"DEVELOPMENT." SHORT NOSES INTO LONG.

ticulated stains, this, please observe, is constant in their colours: they are always, in the deadly serpents, lurid, or dull.

The fatal serpents are all of the French school of art,—French grey; the throat of the asp, French blue, the brightest thing I know in the deadly snakes. The rest are all gravel colour, mud colour, blue-pill colour, or in general, as I say, French high-art colour. You will find this pointed out long ago in one of the most important chapters of 'Modern Painters,' and I need not dwell upon it now, except just to ask you to observe, not only that puffadders and rattlesnakes have no resemblance to tulips and roses, but that they never have even the variegated greens and blues of mackerel, or the pinks and crimsons of the char or trout. Fancy the difference it would make in our general conception of creation, if peacocks had grey tails, and serpents golden and blue ones; or if cocks had only black spectacles on their shoulders, and cobras red combs on their heads,—if hummingbirds flew in suits of black, and water-vipers swam in amethyst! *

35. I come now to the fifth, midmost, and chiefly important section of my subject, namely, the manner of motion in serpents. They are distinguished from all other creatures by that motion, which I tried to describe the terror of, in the 'Queen of the Air'—calling the Serpent "a wave without wind, —a current,—but with no fall." A snail and a worm go on their bellies as much as a serpent, but the essential motion of a serpent is undulation,—not up and down, but from side to

* Had I possessed the beautiful volume of the Thanatophidia, above referred to, before giving my lecture, I should have quoted from it the instance of one water-viper, Hydrophis nigrocincta (*q.* purpureocincta ?), who *does* swim in amethyst, if the colouring of the plate may be trusted, rather than the epithet of its name. I should also have recommended to especial admiration the finishing of the angular spots in Dr. Shortt's exquisite drawing of Hypnale Nepa.

Mr. Alfred Tylor, on the evening when I last lectured, himself laid before the Zoological Society, for the first time, the theory of relation between the vertebræ and the succession of dorsal bars or spots, which I shall be rejoiced if he is able to establish; but I am quite ready to accept it on his authority, without going myself into any work on the bones.

side; and the first thing you have got to ask about it, is, *why* it goes from side to side. Those who attended carefully to Professor Huxley's lecture, do not need to be again told that the bones of its spine *allow it* to do so; but you were not then told, nor does any scientific book that I know, tell you, why it *needs* to do so. Why should not it go straight the shortest way? Why, even when most frightened and most in a hurry, does it wriggle across the road, or through the grass, with that special action from which you have named your twisting lake in Hyde Park, and all other serpentine things? That is the first thing you have to ask about it, and it never has been asked yet, distinctly.

36. Supposing that the ordinary impression were true, that it thrusts itself forward by the alternate advance and thrust-backward of the plates of its belly, there is no reason why it should not go straight as a centipede does, or the more terrific scarlet centipede or millepede,—a regiment of soldiers. I was myself long under the impression, gathered from scientific books, that it moved in this manner, or as this wise Natural History of Cuvier puts it, "by true reptation;"* but, however many legs a regiment or a centipede may possess, neither body of them can move faster than an individual pair of legs can,—their hundred or thousand feet being each capable of only one step at a time; and, with that allowance, only a certain proportion of pace is possible, and the utmost rapidity of the most active spider, or centipede, does not for an instant equal the dash of a snake in full power. But you—nearly all of you, I fancy—have learned, during the sharp frosts of the last winters, the real secret of it, and will recognize in a moment what the motion is, and only can be, when I show you the real rate of it. It is not often that you can see a snake in a hurry, for he generally withdraws subtly and quietly, even

* It cannot be too often pointed out how much would be gained by merely insisting on scientific books being written in plain English. If only this writer had been forbidden to use the word 'repo' for 'crawl,' and to write, therefore, that serpents were crawling creatures, who moved by true crawlation,—his readers would have seen exactly how far he and they had got.

when distinctly seen; but if you put him to his pace either by fear or anger, you will find it is the sweep of the outside edge in skating, carried along the whole body,—that is to say, three or four times over. Outside or inside edge does not, however, I suppose, matter to the snake, the fulcrum being according to the lie of the ground, on the concave or convex side of the curve, and the whole strength of the body is alive in the alternate curves of it.

37. This splendid action, however, you must observe, can hardly ever be seen when the snake is in confinement. Half a second would take him twice the length of his cage; and the sluggish movement which you see there, is scarcely ever more than the muscular extension of himself out of his 'collected' coil into a more or less straight line; which is an action imitable at once with a coil of rope. You see that one-half of it can move anywhere without stirring the other; and accordingly you may see a foot or two of a large snake's body moving one way, and another foot or two moving the other way, and a bit between not moving at all; which I, altogether, think we may specifically call 'Parliamentary' motion; but this has nothing in common with the gliding and truly serpentine power of the animal when it exerts itself.

38. (Thus far, I stated the matter in my lecture, apologizing at the same time for the incompleteness of demonstration which, to be convincing, would have taken me the full hour of granted attention, and perhaps with small entertainment to most of my hearers. But, for once, I care somewhat to establish my own claim to have first described serpent motion, just as I have cared much to establish Forbes's claim to have first discerned the laws of glacier flow; and I allow myself, therefore, here, a few added words of clearer definition.

39. When languidly moving in its cage, (or stealthily when at liberty,) a serpent may continually be seen to hitch or catch one part of its body by the edge of the scales against the ground, and from the fulcrum of that fixed piece extend other parts or coils in various directions. But this is not the movement of progress. When a serpent is once in full pace, every part of its body moves with equal velocity; and the whole in

a series of waves, varied only in sweep in proportion to the thickness of the trunk. No part is straightened—no part extended—no part stationary. Fast as the head advances, the tail follows, and between both—at the same rate—every point of the body. And the impulse of that body bears it against, and is progressively resilient from, the ground at the edge of each wave, exactly as the blade of the oar in sculling a boat is progressively resilient from the water. In swimming, the action is seen in water itself, and is partially imitated also by fish in the lash of the tail. I do not attempt to analyze the direction of power and thrust in the organic structure, because I believe, without very high mathematics, it cannot be done even for the inorganic momentum of a stream, how much less for the distributed volition of muscle, which applies the thrust at the exact point of the living wave where it will give most forwarding power.

I am not sure how far the water serpents may sometimes use vertical instead of lateral undulation ; but their tails are I believe always vertically flattened, implying only lateral oar-stroke. My friend Mr. Henry Severn, however, on one occasion saw a large fresh-water serpent swimming in vertically sinuous folds, with its head raised high above the surface, and making the water foam at its breast, just as a swan would.)

40. Adding thus much to what I said of snake action, I find myself enabled to withdraw, as unnecessary, the question urged, in the next division of the lecture, as to the actual pain inflicted by snakebite, by the following letter,* since received on the subject, from Mr. Arthur Nicols :—

* A series of most interesting papers, by Mr. Nicols, already published in 'The Country,' and reprinted in 'Chapters from the Physical History of the Earth,' (Kegan, Paul, & Co.), may be consulted on all the points of chiefly terrible interest in serpent life. I have also a most valuable letter describing the utter faintness and prostration, without serious pain, caused by the bite of the English adder, from Mr. Spedding Curwen, adding the following very interesting notes. "The action was, and, so far as I have seen, always is, a distinct hammer-like stroke of the head and neck, with the jaw wide open. In the particular case in question, my brother had the adder hanging by the tail between his finger and thumb, and was lowering it gradually into our botany-box

"With respect to your remark that there are no descriptions of the sensation produced by snake-poison, in the nature of things, direct evidence of this kind is not easy to get; for, in the first place, the sufferer is very soon past the power of describing the sensations; and, in the second, but a minute fraction of those who are killed by snakes in India come under the hands of medical men. A person of the better class, too, is rarely bitten fatally. The sufferers are those who go about with naked feet, and handle wood, and whose work generally brings them into contact with snakes.

"A friend brought me from India last year several specimens of Echis carinata, a species about nine inches long, whose fangs (two on one maxilla in one instance) were as large as this—(a quarter of an inch long, curved), and hard as steel.

"This Echis kills more people in its district than all the other snakes together; it is found everywhere. We must also remember how very few persons bitten recover. Indirect evidence seems to point to a comatose state as soon as the poison takes effect; and those writhings of bitten animals which it gives us so much pain to witness are probably not the expression of suffering. In one of Fayrer's cases the patient (bitten by a cobra) complained, when taken to the hospital, of a burning pain in his foot; but as no more is said, I infer he then became incapable of giving any further description. The 'burning' is just what I feel when stung by a bee, and the poison soon makes me drowsy. In one instance I lay for an

the lid of which I was holding open. There were already three adders in the box; and in our care lest *they* should try to escape, we did not keep enough watch over the new capture. As his head reached the level of the lid of the box, he made a side-dart at my hand, and struck by the thumb nail. The hold was *quite* momentary, but as the adder was suspended by the tail, that may be no guide to the general rule. The receding of the blood was only to a small distance, say a quarter of an inch round the wound. The remedies I used were whisky, (half a pint, as soon as I got to the nearest inn, and more at intervals all day, also ammonia,) both to drink and to bathe the wound with. The whisky seemed to have no effect: my whole body was cold and deathly, and I felt none of the glow which usually follows a stimulant."

hour feebly conscious, but quite indifferent to the external world; and although that is fourteen years ago, I well remember speculating (albeit I was innocent of any knowledge of snakes then) as to whether their poison had a similar effect. It should not, I think, concern us much to learn what is the precise character of the suffering endured by any poor human being whose life is passing away under this mysterious influence, but to discover its physiological action."

41. Most wisely and truly said: and indeed, if any useful result is ever obtained for humanity by the time devoted recently, both in experiment and debate, to the question of the origin of life, it must be in the true determination of the meanings of the words Medicine and Poison, and the separation into recognized orders of the powers of the things which supply strength and stimulate function, from those which dissolve flesh and paralyze nerve. The most interesting summed result which I yet find recorded by physicians, is the statement in the appendix to Dr. Fayrer's 'Thanatophidia' of the relative mortal action of the Indian and Australian venomous snakes; the one paralyzing the limbs, and muscles of breathing and speech, but not affecting the heart; the other leaving the limbs free, but stopping the heart.

42. But the most terrific account which I find given with sufficient authority of the effect of snake-bite is in the general article closing the first volume of Russell's 'History of Indian Serpents.' Four instances are there recorded of the bite, not of the common Cobra, but of that called by the Portuguese Cobra di Morte. It is the smallest, and the deadliest, of all venomous serpents known,—only six inches long, or nine at the most, and not thicker than a tobacco-pipe,—and, according to the most definite account, does not move like ordinary serpents, but throws itself forward a foot or two on the ground, in successive springs, falling in the shape of a horse-shoe. In the five instances given of its bite, death follows, in a boy, ten minutes after the bite; and in the case of two soldiers, bitten by the same snake, but one a minute after the other, in their guard-room, about one in the morning,—the first died at seven in the morning, the second at noon; in both, the powers

of sight gradually failing, and they became entirely blind before death. The snake is described as of a dark straw colour, with two black lines behind the head; small, flat head, with *eyes that shone like diamonds.*

43. Next in fatal power to this serpent,—fortunately so rare that I can find no published drawing of it,—come the Cobra, Rattlesnake, and Trigonocephalus, or triangle-headed serpent of the West Indies. Of the last of these snakes, you will find a most terrific account (which I do not myself above one-third believe) in the ninth volume of the English translation of Cuvier's 'Animal Kingdom.' It is a grand book of fifteen volumes, copiously illustrated, and quite unequalled for collection of the things you do not want to know in the body of the text, and for ceasing to be trustworthy the moment it is entertaining. I will read from it a single paragraph concerning the Trigonocephalus, of which you may believe as much or as little as you like. "These reptiles possess an activity and vivacity of motion truly alarming. A ferocious instinct induces them to dart impetuously upon passengers, either by suddenly letting go the sort of spring which their body forms, rolled in concentric and superpoised circles, and thus shooting like an arrow from the bow of a vigorous archer, or pursuing them by a series of rapid and multiplied leaps, or climbing up trees after them, or even threatening them in a vertical position."

44. The two other serpents, one used to be able to study at our own Zoological Gardens; but the cobra has now for some years had the glass in front of him whitened, to prevent vulgar visitors from poking sticks at him, and wearing out his constitution in bad temper. I do not know anything more disgraceful to the upper classes of England as a body, than that, while on the one hand their chief recreations, without which existence would not be endurable to them, are gambling in horses, and shooting at birds, they are so totally without interest in the natures and habits of animals in general, that they have never thought of enclosing for themselves a park and space of various kinds of ground, in free and healthy air, in which there should be a perfect gallery, Louvre, or

Uffizii, not of pictures, as at Paris, nor of statues, as at Florence, but of living creatures of all kinds, beautifully kept, and of which the contemplation should be granted only to well-educated and gentle people who would take the trouble to travel so far, and might be trusted to behave decently and kindly to any living creatures, wild or tame.

45. Under existing circumstances, however, the Zoological Gardens are still a place of extreme interest; and I have been able at different times to make memoranda of the ways of snakes there, which have been here enlarged for you by my friends, or by myself; and having been made always with reference to gesture or expression, show you, I believe, more of the living action than you will usually find in scientific drawings: the point which you have chiefly to recollect about the cobra being this curious one—that while the puffadder, and most other snakes, or snakelike creatures, swell when they are angry, the cobra flattens himself; and becomes, for four or five inches of his length, rather a hollow shell than a snake. The beautiful drawing made by Mr. Macdonald in enlarging my sketch from life shows you the gesture accurately, and especially the levelling of the head which gives it the chief terror. It is always represented with absolute truth in Egyptian painting and sculpture; one of the notablest facts to my mind in the entire history of the human race being the adoption by the Egyptians of this serpent for the type of their tyrannous monarchy, just as the cross or the lily was adopted for the general symbol of kinghood by the monarchs of Christendom.

46. I would fain enlarge upon this point, but time forbids me: only please recollect this one vital fact, that the nature of Egyptian monarchy, however great its justice, is always that of government by cruel force; and that the nature of Christian monarchy is embodied in the cross or lily, which signify either an authority received by divine appointment, and maintained by personal suffering and sacrifice; or else a dominion consisting in recognized gentleness and beauty of character, loved long before it is obeyed.

47. And again, whatever may be the doubtful meanings of

the legends invented among all those nations of the earth who have ever seen a serpent alive, one thing is certain, that they all have felt it to represent to them, in a way quite inevitably instructive, the state of an entirely degraded and malignant human life. I have no time to enter on any analysis of the causes of expression in animals, but this is a constant law for them, that they are delightful or dreadful to us exactly in the degree in which they resemble the contours of the human countenance given to it by virtue and vice; and this head of the cerastes, and that of the rattlesnake, are in reality more terrific to you than the others, not because they are more snaky, but because they are more human,—because the one has in it the ghastliest expression of malignant avarice, and the other of malignant pride. In the deepest and most literal sense, to those who allow the temptations of our natural passions their full sway, the curse, fabulously (if you will) spoken on the serpent is fatally and to the full accomplished upon ourselves; and as for noble and righteous persons and nations, the words are for ever true, "Thou art fairer than the children *of men:* full of grace are thy lips;" so for the ignoble and iniquitous, the saying is for ever true, "Thou art fouler than the children of the Dust, and the poison of asps is under thy lips."

48. Let me show you, in one constant manner of our national iniquity, how literally that is true. Literally, observe. In any good book, but especially in the Bible, you must always look for the literal meaning of everything first,—and act out that, then the spiritual meaning easily and securely follows. Now in the great Song of Moses, in which he foretells, before his death, the corruption of Israel, he says of the wicked race into which the Holy People are to change, "Their wine is the poison of dragons, and the cruel venom of asps." Their wine,—that is to say, of course, not the wine they drink, but the wine they give to drink. So that, as our best duty to our neighbour is figured by the Samaritan who heals wounds by pouring in oil and wine, our worst sin against our neighbour is in envenoming his wounds by pouring in gall and poison. The cruel venom of *Asps*—of that brown gentleman you see there!

49. Now I am sure you would all be very much shocked, and think it extremely wrong, if you saw anybody deliberately poisoning so much as one person in that manner. Suppose even in the interests of science, to which you are all so devoted, I were myself to bring into this lecture-room a country lout of the stupidest,—the sort whom you produce by Church of England education, and then do all you can to get emigrated out of your way; fellows whose life is of no use to them, nor anybody else; and that—always in the interests of science—I were to lance just the least drop out of that beast's tooth into his throat, and let you see him swell, and choke, and get blue and blind, and gasp himself away—you wouldn't all sit quiet there, and have it so done—would you?—in the interests of science.

50. Well; but how then if in your own interests? Suppose the poor lout had his week's wages in his pocket—thirty shillings or so; and, after his inoculation, I were to pick his pocket of them; and then order in a few more louts, and lance their throats likewise, and pick their pockets likewise, and divide the proceeds of, say, a dozen of poisoned louts, among you all, after lecture: for the seven or eight hundred of you, I could perhaps get sixpence each out of a dozen of poisoned louts; yet you would still feel the proceedings painful to your feelings, and wouldn't take the sixpen'north—would you?

51. But how, if you constituted yourselves into a co-operative Egyptian Asp and Mississippi Rattlesnake Company, with an eloquent member of Parliament for the rattle at its tail? and if, brown asps getting scarce, you brewed your own venom of beautiful aspic brown, with a white head, and persuaded your louts to turn their own pockets inside-out to get it, giving you each sixpence a night,—seven pounds ten a year of lovely dividend!—How does the operation begin to look now? Commercial and amiable—does it not?

52. But how—to come to actual fact and climax—if, instead of a Company, you were constituted into a College of reverend and scholarly persons, each appointed—like the King of Salem—to bring forth the bread and wine of healing knowledge;

but that, instead of bread gratis, you gave stones for pay; and, instead of wine gratis, you gave asp-poison for pay,—how then? Suppose, for closer instance, that you became a College called of the Body of Christ, and with a symbolic pelican for its crest, but that this charitable pelican had begun to peck—not itself, but other people,—and become a vampire pelican, sucking blood instead of shedding,—how then? They say it's an ill bird that fouls its own nest. My own feeling is that a well-behaved bird will neither foul its own nest nor another's, but that, finding it in any wise foul, it will openly say so, and clean it.

53. Well, I know a village, some few miles from Oxford, numbering of inhabitants some four hundred louts, in which my own College of the Body of Christ keeps the public-house, and therein sells—by its deputy—such poisoned beer that the Rector's wife told me, only the day before yesterday, that she sent for some to take out a stain in a dress with, and couldn't touch the dress with it, it was so filthy with salt and acid, to provoke thirst; and that while the public-house was there she had no hope of doing any good to the men, who always prepared for Sunday by a fight on Saturday night. And that my own very good friend the Bursar, and we the Fellows, of Corpus, being appealed to again and again to shut up that tavern, the answer is always, "The College can't afford it: we can't give up that fifty pounds a year out of those peasant sots' pockets, and yet 'as a College' live."

Drive that nail home with your own hammers, for I've no more time; and consider the significance of the fact, that the gentlemen of England can't afford to keep up a college for their own sons but by selling death of body and soul to their own peasantry.

54. I come now to my last head of lecture—my caution concerning the wisdom which we buy at such a price. I had not intended any part of my talk to-night to be so grave; and was forced into saying what I have now said by the appointment of Fors that the said village Rector's wife should come up to town to nurse her brother, Mr. Severn, who drew your diagrams for you. I had meant to be as cheerful as I

could ; and chose the original title of my lecture, 'A Caution to Snakes,' partly in play, and partly in affectionate remembrance of the scene in 'New Men and Old Acres,' in which the phrase became at once so startling and so charming, on the lips of my much-regarded friend, Mrs. Kendal.

But this one little bit of caution more I always intended to give, and to give earnestly.

55. What the best wisdom of the Serpent may be, I assume that you all possess ;—and my caution is to be addressed to you in that brightly serpentine perfection. In all other respects as wise, in one respect let me beg you to be wiser than the Serpent, and not to eat your meat without tasting it,—meat of any sort, but above all the serpent-recommended meat of knowledge. Think what a delicate and delightful meat that used to be in old days, when it was not quite so common as it is now, and when young people—the best sort of them—really hungered and thirsted for it. *Then* a youth went up to Cambridge, or Padua, or Bonn, as to a feast of fat things, of wines on the lees, well-refined. But now, he goes only to swallow,—and, more's the pity, not even to swallow as a glutton does, with enjoyment ; not even—forgive me the old Aristotelian Greek, ἡδομενος τῃ αφῃ—pleased with the going down, but in the saddest and exactest way, as a constrictor does, tasting nothing all the time. You remember what Professor Huxley told you—most interesting it was, and new to me—of the way the great boa does not in any true sense swallow, but only hitches himself on to his meat like a coal-sack ;—well, that's the exact way you expect your poor modern student to hitch himself on to *his* meat, catching and notching his teeth into it, and dragging the skin of him tight over it,—till at last—you know I told you a little while ago our artists didn't know a snake from a sausage,—but, Heaven help us, your University doctors are going on at such a rate that it will be all we can do, soon, to know a *man* from a sausage.

56. Then think again, in old times what a delicious thing a book used to be in a chimney corner, or in the garden, or in the fields, where one used really to read a book, and nibble

a nice bit here and there if it was a bride-cakey sort of book, and cut oneself a lovely slice—fat and lean—if it was a round-of-beef sort of book. But what do you do with a book now, be it ever so good? You give it to a reviewer, first to skin it, and then to bone it, and then to chew it, and then to lick it, and then to give it you down your throat like a handful of pilau. And when you've got it, you've no relish for it, after all. And, alas! this continually increasing deadness to the pleasures of literature leaves your minds, even in their most conscientious action, sensitive with agony to the sting of vanity, and at the mercy of the meanest temptations held out by the competition of the schools. How often do I receive letters from young men of sense and genius, lamenting the loss of their strength, and waste of their time, but ending always with the same saying, "I *must* take as high a class as I can, in order to please my father." And the fathers love the lads all the time, but yet, in every word they speak to them, prick the poison of the asp into their young blood, and sicken their eyes with blindness to all the true joys, the true aims, and the true praises of science and literature; neither do they themselves any more conceive what was once the faith of Englishmen; that the only path of honour is that of rectitude, and the only place of honour, the one that you are fit for. Make your children happy in their youth; let distinction come to them, if it will, after well-spent and well-remembered years; but let them now break and eat the bread of Heaven with gladness and singleness of heart, and send portions to them for whom nothing is prepared;—and so Heaven send you its grace—before meat, and after it.

CHAPTER II.

REVISION.

1. If the reader will look back to the opening chapter of 'Deucalion,' he will see that the book was intended to be a collection of the notices of phenomena relating to geology which

were scattered through my former works, systematized so far as might be possible, by such additional studies as time permitted me.

Hitherto, however, the scattered chapters have contained nothing else than these additional studies, which, so far from systematizing what preceded them, stand now greatly in need of arrangement themselves; and still more of some explanation of the incidental passages referring to matters of higher science than geology, in which I have too often assumed that the reader is acquainted with—and in some degree even prepared to admit—the modes of thought and reasoning which have been followed throughout the general body of my writings.

I have never given myself out for a philosopher; nor spoken of the teaching attempted in connection with any subject of inquiry, as other than that of a village showman's "Look—and you shall see." But, during the last twenty years, so many baseless semblances of philosophy have announced themselves; and the laws of decent thought and rational question have been so far transgressed (even in our universities, where the moral philosophy they once taught is now only remembered as an obscure tradition, and the natural science in which they are proud, presented only as an impious conjecture), that it is forced upon me, as the only means of making what I have said on these subjects permanently useful, to put into clear terms the natural philosophy and natural theology to which my books refer, as accepted by the intellectual leaders of all past time.

2. To this end I am republishing the second volume of 'Modern Painters,' which, though in affected language, yet with sincere and very deep feeling, expresses the first and foundational law respecting human contemplation of the natural phenomena under whose influence we exist,—that they can only be seen with their properly belonging joy, and interpreted up to the measure of proper human intelligence, when they are accepted as the work, and the gift, of a Living Spirit greater than our own.

3. Similarly, the moral philosophy which underlies all the

appeals, and all the accusations, made in the course of my writings on political science, assumes throughout that the principles of Justice and Mercy which are fastened in the hearts of men, are also expressed in entirely consistent terms throughout the higher—(and even the inferior, when undefiled)—forms of all lovely literature and art; and enforced by the Providence of a Ruling and Judging Spiritual Power, manifest to those who desire its manifestation, and concealed from those who desire its concealment.

4. These two Faiths, in the creating Spirit, as the source of Beauty,—in the governing Spirit, as the founder and maintainer of Moral Law, are, I have said, *assumed* as the basis of all exposition and of all counsel, which have ever been attempted or offered in my books. I have never held it my duty, never ventured to think of it even as a permitted right, to proclaim or explain these faiths, except only by referring to the writings, properly called inspired, in which the good men of all nations and languages had concurrently—though at far distant and different times—declared them. But it has become now for many reasons, besides those above specified, necessary for me to define clearly the meaning of the words I have used —the scope of the laws I have appealed to, and, most of all, the nature of some of the feelings possible under the reception of these creeds, and impossible to those who refuse them.

5. This may, I think, be done with the best brevity and least repetition, by adding to those of my books still unfinished, 'Deucalion,' 'Proserpina,' 'Love's Meinie,' and 'Fors Clavigera,' explanatory references to the pieces of theology or natural philosophy which have already occurred in each, indicating their modes of connection, and the chiefly parallel passages in the books which are already concluded; among which I may name the 'Eagle's Nest,' as already, if read carefully, containing nearly all necessary elements of interpretation for the others.

6. I am glad to begin with 'Deucalion,' for its title already implies, (and is directly explained in its seventh page as implying,) the quite first principle, with me, of historic reading in divinity, that all nations have been taught of God according

to their capacity, and may best learn what farther they would know of Him by reverence for the impressions which He has set on the hearts of each, and all.

I said farther in the same place that I thought it well for the student first to learn the "myths of the Betrayal and Redemption" as they were taught to the heathen world; but I did not say what I meant by the 'Betrayal' and 'Redemption' in their universal sense, as represented alike by Christian and heathen legends.

7. The idea of contest between good and evil spirits for the soul and body of man, which forms the principal subject of all the imaginative literature of the world, has hitherto been the only explanation of its moral phenomena tenable by intellects of the highest power. It is no more a certain or sufficient explanation than the theory of gravitation is of the construction of the starry heavens; but it reaches farther towards analysis of the facts known to us than any other. By '*the* Betrayal' in the passage just referred to I meant the supposed victory, in the present age of the world, of the deceiving spiritual power, which makes the vices of man his leading motives of action, and his follies, its leading methods. By '*the* Redemption' I meant the promised final victory of the creating and true Spirit, in opening the blind eyes, in making the crooked places straight and the rough plain, and restoring the power of His ministering angels, over a world in which there shall be no more tears.

8. The 'myths'—allegorical fables or stories—in which this belief is represented, were, I went on to say in the same place, "incomparably *truer*" than the Darwinian—or, I will add, any other conceivable materialistic theory—because they are the instinctive products of the natural human mind, conscious of certain facts relating to its fate and peace; and as unerring in that instinct as all other living creatures are in the discovery of what is necessary for their life: while the materialistic theories have been from their beginning products, in the words used in the passage I am explaining (page 8, line 4), of the '*half* wits of impertinent multitudes.' They are half-witted because never entertained by any person possessing

imaginative power,—and impertinent, because they are always announced as if the very defect of imagination constituted a superiority of discernment.

9. In one of the cleverest—(and, in description of the faults and errors of religious persons, usefullest)—books of this modern half-witted school, "une cure du Docteur Pontalais," of which the plot consists in the revelation by an ingenious doctor to an ingenuous priest that the creation of the world may be sufficiently explained by dropping oil with dexterity out of a pipe into a wineglass,—the assumption that 'la logique' and 'la methode' were never applied to theological subjects except in the Quartier Latin of Paris in the present blessed state of Parisian intelligence and morals, may be I hope received as expressing nearly the ultimate possibilities of shallow arrogance in these regions of thought; and I name the book as one extremely well worth reading, first as such; and secondly because it puts into the clearest form I have yet met with, the peculiar darkness of materialism, in its denial of the hope of immortality. The hero of it, who is a perfectly virtuous person, and inventor of the most ingenious and benevolent machines, is killed by the cruelties of an usurer and a priest; and in dying, the only consolation he offers his wife and children is that the loss of one life is of no consequence in the progress of humanity.

This unselfish resignation to total death is the most heroic element in the Religion now in materialist circles called the Religion "of Humanity," and announced as if it were a new discovery of nineteenth-century sagacity, and able to replace in the system of its society, alike all former ideas of the power of God, and destinies of man.

10. But, in the first place, it is by no means a new discovery. The fact that the loss of a single life is of no consequence when the lives of many are to be saved, is, and always has been, the root of every form of beautiful courage; and I have again and again pointed out, in passages scattered through writings carefully limited in assertion, between 1860 and 1870, that the heroic actions on which the material destinies of this world depend are almost invariably done under the conception

of death as a calamity, which is to be endured by one for the deliverance of many, and after which there is no personal reward to be looked for, but the gratitude or fame of which the victim anticipates no consciousness.

11. In the second place, this idea of self-sacrifice is no more sufficient for man than it is new to him. It has, indeed, strength enough to maintain his courage under circumstances of sharp and instant trial; but it has no power whatever to satisfy the heart in the ordinary conditions of social affection, or to console the spirit and invigorate the character through years of separation or distress. Still less can it produce the states of intellectual imagination which have hitherto been necessary for the triumphs of constructive art; and it is a distinctive essential point in the modes of examining the arts as part of necessary moral education, which have been constant in my references to them, that those of poetry, music, and painting, which the religious schools who have employed them usually regard only as stimulants or embodiments of faith, have been by me always considered as its *evidences*. Men do not sing themselves into love or faith; but they are incapable of true song, till they love, and believe.

12. The lower conditions of intellect which are concerned in the pursuit of natural science, or the invention of mechanical structure, are similarly, and no less intimately, dependent for their perfection on the lower feelings of admiration and affection which can be attached to material things: these also—the curiosity and ingenuity of man—live by admiration and by love; but they differ from the imaginative powers in that they are concerned with things seen—not with the evidences of things unseen—and it would be well for them if the understanding of this restriction prevented them in the present day as severely from speculation as it does from devotion.

13. Nevertheless, in the earlier and happier days of Linnæus, de Saussure, von Humboldt, and the multitude of quiet workers on whose secure foundation the fantastic expatiations of modern science depend for whatever good or stability there is in them, natural religion was always a part of natural

science ; it becomes with Linnæus a part of his definitions ; it underlies, in serene modesty, the courage and enthusiasm of the great travellers and discoverers, from Columbus and Hudson to Livingstone ; and it has saved the lives, or solaced the deaths, of myriads of men whose nobleness asked for no memorial but in the gradual enlargement of the realm of manhood, in habitation, and in social virtue.

14. And it is perhaps, of all the tests of difference between the majestic science of those days, and the wild theories or foul curiosities of our own, the most strange and the most distinct, that the practical suggestions which are scattered through the writings of the older naturalists tend always directly to the benefit of the general body of mankind ; while the discoverers of modern science have, almost without exception, provoked new furies of avarice, and new tyrannies of individual interest ; or else have directly contributed to the means of violent and sudden destruction, already incalculably too potent in the hands of the idle and the wicked.

15. It is right and just that the reader should remember, in reviewing the chapters of my own earlier writings on the origin and sculpture of mountain form, that all the investigations undertaken by me at that time were connected in my own mind with the practical hope of arousing the attention of the Swiss and Italian mountain peasantry to an intelligent administration of the natural treasures of their woods and streams. I had fixed my thoughts on these problems where they are put in the most exigent distinctness by the various distress and disease of the inhabitants of the valley of the Rhone, above the lake of Geneva : a district in which the adverse influences of unequal temperatures, unwholesome air, and alternate or correlative drought and inundation, are all gathered in hostility against a race of peasantry, the Valaisan, by nature virtuous, industrious, and intelligent in no ordinary degree, and by the hereditary and natural adversities of their position, regarded by themselves as inevitable, reduced indeed, many of them, to extreme poverty and woful disease ; but never sunk into a vicious or reckless despair.

16. The practical conclusions at which I arrived, in study-

ing the channels and currents of the Rhone, Ticino, and Adige, were stated first in the letters addressed to the English press on the subject of the great inundations at Rome in 1871 ('Arrows of the Chace,' vol. ii., pp. 104–113), and they are again stated incidentally in 'Fors' (Letter XIX.), with direct reference to the dangerous power of the Adige above Verona. Had those suggestions been acted upon, even in the most languid and feeble manner, the twentieth part of the sums since spent by the Italian government in carrying French Boulevards round Tuscan cities, and throwing down their ancient streets to find lines for steam tramways, would not only have prevented the recent inundations in North Italy, but rendered their recurrence for ever impossible.

17. As it is thus the seal of rightly directed scientific investigation, to be sanctified by loving anxiety for instant practical use, so also the best sign of its completeness and symmetry is in the frankness of its communication to the general mind of well-educated persons.

The fixed relations of the crystalline planes of minerals, first stated, and in the simplest mathematical terms expressed, by Professor Miller of Cambridge, have been examined by succeeding mineralogists with an ambitious intensity which has at last placed the diagrams of zone circles for quartz and calcite, given in Cloizeaux's mineralogy, both as monuments of research, and masterpieces of engraving, a place among the most remarkable productions of the feverish energies of the nineteenth century. But in the meantime, all the characters of minerals, except the optical and crystalline ones, which it required the best instruments to detect, and the severest industry to register, have been neglected;* the

* Even the chemistry has been allowed to remain imperfect or doubtful, while the planes of crystals were being counted: thus for an extreme instance, the most important practical fact that the colour of ultramarine is destroyed by acids, will not be found stated in the descriptions of that mineral by either Miller, Cloizeaux, or Dana; and no microscopic studies of refraction have hitherto informed the public why a ruby is red, a sapphire blue, or a flint black. On a large scale, the darkening of the metamorphic limestones, near the central ranges, remains unexplained.

arrangement of collections in museums has been made unintelligibly scientific, without the slightest consideration whether the formally sequent specimens were in lights, or places, where they could be ever visible ; the elements of mineralogy prepared for schools have been diversified by eight or ten different modes, nomenclatures, and systems of notation ; and while thus the study of mineralogy at all has become impossible to young people, except as a very arduous branch of mathematics, that of its connection with the structure of the earth has been postponed by the leading members of the Geological Society, to inquire into the habits of animalculæ fortunately for the world invisible, and monsters fortunately for the world unregenerate. The race of old Swiss guides, who knew the flowers and crystals of their crags, has meanwhile been replaced by chapmen, who destroy the rarest living flowers of the Alps to raise the price of their herbaria, and pedestrian athletes in the pay of foolish youths ; the result being that while fifty years ago there was a good and valuable mineral cabinet in every important mountain village, it is impossible now to find even at Geneva anything offered for sale but dyed agates from Oberstein ; and the confused refuse of the cheap lapidary's wheel, working for the supply of Mr. Cooke's tourists with 'Trifles from Chamouni.'

18. I have too long hoped to obtain some remedy for these evils by putting the questions about simple things which ought to be answered in elementary schoolbooks of science, clearly before the student. My own books have thus sometimes become little more than notes of interrogation, in their trust that some day or other the compassion of men of science might lead them to pause in their career of discovery, and take up the more generous task of instruction. But so far from this, the compilers of popular treatises have sought always to make them more saleable by bringing them up to the level of last month's scientific news ; seizing also invariably, of such new matter, that which was either in itself most singular, or in its tendencies most contradictory of former suppositions and credences : and I purpose now to redeem, so far

as I can, the enigmatical tone of my own books, by collecting the sum of the facts they contain, partly by indices, partly in abstracts, and so leaving what I myself have seen or known, distinctly told, for what use it may plainly serve.

For a first step in the fulfilment of this intention, some explanation of the circumstances under which the preceding lecture (on the serpent) was prepared, and of the reasons for its insertion in 'Deucalion,' are due to the reader, who may have thought it either careless in its apparent jesting, or irrelevant in its position.

I happened to be present at the lecture given on the same subject, a few weeks before, by Professor Huxley, in which the now accepted doctrine of development was partly used in support of the assertion that serpents were lizards which had lost their legs; and partly itself supported reciprocally, by the probability which the lecturer clearly showed to exist, of their being so.

Without denying this probability, or entering at all into the question of the links between the present generation of animal life and that preceding it, my own lecture was intended to exhibit another series, not of merely probable, but of observable, facts, in the relation of living animals to each other.

And in doing so, to define, more intelligibly than is usual among naturalists, the disputed idea of Species itself.

As I wrote down the several points to be insisted on, I found they would not admit of being gravely treated, unless at extreme cost of pains and time—not to say of weariness to my audience. Do what I would with them, the facts themselves were still superficially comic, or at least grotesque: and in the end I had to let them have their own way; so that the lecture accordingly became, apparently, rather a piece of badinage suggested by Professor Huxley's, than a serious complementary statement.

Nothing, however, could have been more seriously intended; and the entire lecture must be understood as a part, and a very important part, of the variously reiterated illustration, through all my writings, of the harmonies and intervals in the

being of the existent animal creation—whether it be developed or undeveloped.

The nobly religious passion in which Linnæus writes the prefaces and summaries of the 'Systema Naturæ,' with the universal and serene philanthropy and sagacity of Humboldt, agree in leading them to the optimist conclusion, best, and unsurpassably, expressed for ever in Pope's 'Essay on Man'; and with respect to lower creatures, epigrammatized in the four lines of George Herbert,—

> "God's creatures leap not, but express a feast
> Where all the guests sit close, and nothing wants.
> Frogs marry fish and flesh;—bats, bird and beast,
> Sponges, non-sense and sense, mines,* th' earth and plants."

And the thoughts and feelings of these, and all other good, wise, and happy men, about the world they live in, are summed in the 104th Psalm.

On the other hand, the thoughts of cruel, proud, envious, and unhappy men, of the Creation, always issue out of, and gather themselves into, the shambles or the charnel house: the word 'shambles,' as I use it, meaning primarily the battle-field, and secondly, every spot where any one rejoices in taking life;† and the 'charnel house' meaning collectively, the Morgue, brothel, and vivisection-room.

But, lastly, between these two classes, of the happy and the heartless, there is a mediate order of men both unhappy and compassionate' who have become aware of another form of existence in the world, and a domain of zoology extremely difficult of vivisection,—the diabolic. These men, of whom Byron, Burns, Goethe, and Carlyle are in modern days the chief, do not at all feel that the Nature they have to deal with expresses a Feast only; or that her mysteries of good and evil are reducible to a quite visible Kosmos, as they stand;

* 'Mines' mean crystallized minerals.

† Compare the Modern with the Ancient Mariner—gun versus cross-bow.—"A magnificent albatross was soaring about at a short distance astern, for some time in the afternoon, and was knocked over, but unfortunately not picked up." ('Natural History of the Strait of Magellan': Edmonston and Douglas, 1871, page 225.)

but that there is another Kosmos, mostly invisible, yet perhaps tangible, and to be felt if not seen.*

Without entering, with Dr. Reville of Rotterdam, upon the question how men of this inferior quality of intellect become possessed either of the idea—or substance—of what they are in the habit of calling 'the Devil'; nor even into the more definite historical question, "how men lived who did seriously believe in the Devil"—(that is to say, every saint and sinner who received a decent education between the first and the seventeenth centuries of the Christian æra,)—I will merely advise my own readers of one fact respecting the above-named writers, of whom, and whose minds, I know somewhat more than Dr. Reville of Rotterdam,—that *they*, at least, do not use the word 'Devil' in any metaphorical, typical, or abstract sense, but—whether they believe or disbelieve in what they say—in a distinctly personal one: and farther, that the conceptions or imaginations of these persons, or any other such persons, greater or less, yet of their species—whether they are a mere condition of diseased brains, or a perception of really existent external forces,—are nevertheless real *Visions* described by them 'from the life,' as literally and straightforwardly as ever any artist of Rotterdam painted a sot—or his pot of beer: and farther—even were we at once to grant that all these visions—as for instance Zechariah's, "I saw the Lord sitting on His Throne, and Satan standing at His right hand to resist Him," *are* nothing more than emanations of the unphosphated nervous matter—still, these states of delirium are an essential part of human natural history: and the species of human Animal subject to them, with the peculiar characters of the phantoms which result from its diseases of the brain, are a much more curious and important subject of science than that which principally occupies the scientific mind of modern days—the species of vermin which are the product of peculiar diseases of the skin.

I state this, however, merely as a necessary Kosmic principle, without any intention of attempting henceforward to en-

* 'The Devil his Origin Greatness and Decadence,' (*Sic*, without commas,) Williams and Norgate, 1871.

gage my readers in any department of Natural History which is outside of the ordinary range of Optics and Mechanics: but if they should turn back to passages of my earlier books which did so, it must always be understood that I am just as literal and simple in language as any of the writers above referred to: and that, for instance, when in the first volume of 'Deucalion,' p. 144–145, I say of the Mylodon—"This creature the Fiends delight to exhibit to you," I don't mean by 'the Fiends' my good and kind geological friends at the British Museum, nor even the architect who made the drain-pipes from the posteriors of its gargoyles the principal shafts in his design for the front of the new building,—be it far from me,—but I do mean, distinctly, Powers of supernatural Mischief, such as St. Dunstan, or St. Anthony, meant by the same expressions.

With which advice I must for the present end this bit of explanatory chapter, and proceed with some of the glacial investigations relating only to the Lakes—and not to the Inhabitants—whether of Coniston or Caina.

CHAPTER III.

BRUMA ARTIFEX.

1. The frost of 9th March, 1879, suddenly recurrent and severe, after an almost Arctic winter, found the soil and rock of my little shaded hill garden, at Brantwood, chilled underneath far down; but at the surface, saturated through every cranny and pore with moisture, by masses of recently thawed snow.

The effect of the acutely recurrent frost on the surface of the gravel walks, under these conditions, was the tearing up of their surface as if by minutely and delicately explosive gases; leaving the heavier stones imbedded at the bottom of little pits fluted to their outline, and raising the earth round them in a thin shell or crust, sustained by miniature ranges of

basaltic pillars of ice, one range set above another, with level plates or films of earth between; each tier of pillars some half-inch to an inch in height, and the storied architecture of them two or three inches altogether; the little prismatic crystals of which each several tier was composed being sometimes knit into close masses with radiant silky lustre, and sometimes separated into tiny, but innumerable shafts, or needles, none more than the twentieth of an inch thick, and many terminating in needle-*points*, of extreme fineness.

2. The soft mould of the garden beds, and the crumbling earth in the banks of streams, were still more singularly divided. The separate clods,—often the separate *particles*,—were pushed up, or thrust asunder, by thread-like crystals, *contorted* in the most fantastic lines, and presenting every form usual in twisted and netted chalcedonies, except the definitely fluent or meltingly diffused conditions, here of course impossible in crystallizations owing their origin to acute and steady frost. The coils of these minute fibres were also more parallel in their swathes and sheaves than chalcedony; and more lustrous in their crystalline surfaces: those which did not sustain any of the lifted clods, usually terminating in fringes of needle-points, melting beneath the breath before they could be examined under the lens.

3. The extreme singularity of the whole structure lay, to my mind, in the fact that there was nowhere the least vestige of *stellar* crystallization. No resemblance could be traced,—no connection imagined,—between these coiled sheaves, or pillared aisles, and the ordinary shootings of radiant films along the surface of calmly freezing water, or the symmetrical arborescence of hoar-frost and snow. Here was an ice-structure wholly of the earth, earthy; requiring for its development, the weight, and for its stimulus, the interference, of clods or particles of earth. In some places, a small quantity of dust, with a large supply of subterranean moisture, had been enough to provoke the concretion of masses of serpentine filaments three or four inches long; but where there was no dust, there were no filaments, and the ground, whether dry or moist, froze hard under the foot.

4. Greatly blaming myself for never having noticed this structure before, I have since observed it, with other modes of freezing shown in the streamlets of the best watered district of the British Islands,—with continually increasing interest: until nearly all the questions I have so long vainly asked myself and other people, respecting the *variable* formations of crystalline minerals, seem to me visibly answerable by the glittering, and softly by the voice, of even the least-thought-of mountain stream, as it relapses into its wintry quietness.

5. Thus, in the first place, the action of common opaque white quartz in filling veins, caused by settlement or desiccation, with transverse threads, imperfectly or tentatively crystalline, (those traversing the soft slates of the Buet and Col d'Anter are peculiarly characteristic, owing to the total absence of lustrous surface in the filaments, and the tortuous aggregation of their nearly solidified tiers or ranks,) cannot but receive some new rays of light in aid of its future explanation, by comparison with the agency here put forth, before our eyes, in the early hours of a single frosty morning; agency almost measurable in force and progress, resulting in the steady elevation of pillars of ice, bearing up an earthy roof, with strength enough entirely to conquer its adherence to heavier stones imbedded in it.

6. Again. While in its first formation, lake or pool ice throws itself always, on calm water, into stellar or plumose films, shot in a few instants over large surfaces; or, in small pools, filling them with spongy reticulation as the water is exhausted, the final structure of its compact mass is an aggregation of vertical prisms, easily separable, when thick ice is slowly thawing: prisms neither formally divided, like those of basalt, nor in any part of their structure founded on the primitive hexagonal crystals of the ice; but starch-like, and irregularly acute-angled.

7. Icicles, and all other such accretions of ice formed by additions at the surface, by flowing or dropping water, are always, when unaffected by irregular changes of temperature or other disturbing accidents, composed of exquisitely

transparent vitreous ice, (the water of course being supposed transparent to begin with) — compact, flawless, absolutely smooth at the surface, and presenting on the fracture, to the naked eye, no evidence whatever of crystalline structure. They will enclose living leaves of holly, fern, or ivy, without disturbing one fold or fringe of them, in clear jelly (if one may use the word of anything frozen so hard), like the daintiest candyings by Parisian confectioner's art, over glacé fruit, or like the fixed juice of the white currant in the perfect confiture of Bar-le-Duc ;—and the frozen gelatine melts, as it forms, stealthily, serenely, showing no vestige of its crystalline power ; pushing nowhere, pulling nowhere ; revealing in dissolution, no secrets of its structure ; affecting flexile branches and foliage only by its weight, and letting them rise when it has passed away, as they rise after being bowed under rain.

8. But ice, on the contrary, formed by an unfailing supply of running water over a rock surface, increases, not from above, but *from beneath*. The stream is never displaced by the ice, and forced to run over it, but the ice is always lifted by the stream ; and the tiniest runlet of water keeps its own rippling way on the rock as long as the frost leaves it life to run with. In most cases, the tricklings which moisten large rock surfaces are supplied by deep under-drainage which no frost can reach ; and then, the constant welling forth and wimpling down of the perennial rivulet, seen here and there under its ice, glittering in timed pulses, steadily, and with a strength according to the need, and practically infinite, heaves up the accumulated bulk of chalcedony it has formed, in masses a foot or a foot and a half thick, if the frost hold ; but always more or less opaque in consequence of the action of the sun and wind, and the superficial additions by adhering snow or sleet ; until the slowly nascent, silently uplifted, but otherwise motionless glaciers,—here taking casts of the crags, and fitted into their finest crannies with more than sculptor's care, and anon extended in rugged undulation over moss or shale, cover the oozy slopes of our moorlands with *statues* of cascades, where, even in the wildest floods of autumn, cascade is not.

9. Actual waterfalls, when their body of water is great, and much of it reduced to finely divided mist, build or block themselves up, during a hard winter, with disappointingly ponderous and inelegant incrustations,—I regret to say more like messes of dropped tallow than any work of water-nymphs. But a small cascade, falling lightly, and shattering itself only into *drops*, will always do beautiful things, and often incomprehensible ones. After some fortnight or so of clear frost in one of our recent hard winters at Coniston, a fall of about twenty-five feet in the stream of Leathes-water, beginning with general glass basket-making out of all the light grasses at its sides, built for itself at last a complete veil or vault of finely interwoven ice, under which it might be seen, when the embroidery was finished, falling tranquilly : its strength being then too far subdued to spoil by overloading or over-labouring the poised traceries of its incandescent canopy.

10. I suppose the component substance of this vault to have been that of ordinary icicle, varied only in direction by infinite accidents of impact in the flying spray. But without including any such equivocal structures, we have already counted five stages of ice familiar to us all, yet not one of which has been accurately described, far less explained. Namely,

(1) Common deep-water surface ice, increased from beneath, and floating, but, except in the degrees of its own expansion, not uplifted.

(2) Surface ice on pools of streams, *exhausting* the water as it forms, and adherent to the stones at its edge. Variously increased in crusts and films of spongy network.

(3) Ice deposited by external flow or fall of water in superadded layers—exogen ice,—on a small scale, vitreous, and perfectly compact, on a large one, coarsely stalagmitic, like impure carbonate of lime, but I *think* never visibly fibrous-radiant, as stalactitic lime is.

(4) Endogen ice, formed from beneath by tricklings over ground surface.

(5) Capillary ice, extant from pores in the ground itself, and carrying portions of it up with its crystals.

11. If to these five modes of slowly progressive formation

we add the swift and conclusive arrest of vapour or dew on a chilled surface, we shall have, in all, six different kinds of —terrestrial, it may be called as opposed to aerial—congelation of water: exclusive of all the atmospheric phenomena of snow, hail, and the aggregation of frozen or freezing particles of vapour in clouds. Inscrutable these, on our present terms of inquiry; but the six persistent conditions, formed before our eyes, may be examined with some chance of arriving at useful conclusions touching crystallization in general.

12. Of which, this universal principle is to be first understood by young people;—that every crystalline substance has a brick of a particular form to build with, usually, in some angle or modification of angle, quite the mineral's own special property,—and if not absolutely peculiar to it, at least peculiarly used by it. Thus, though the brick of gold, and that of the ruby-coloured oxide of copper, are alike cubes, yet gold grows trees with its bricks, and ruby copper weaves samite with them. Gold cannot plait samite, nor ruby copper branch into trees; and ruby itself, with a far more convenient and adaptable form of brick, does neither the one nor the other. But ice, which has the same form of bricks to build with as ruby, can, at its pleasure, bind them into branches, or weave them into wool; buttress a polar cliff with adamant, or flush a dome of Alp with light lovlier than the ruby's.

13. You see, I have written above, 'ruby,' as I write 'gold' or ice, not calling their separate crystals, rubies, or golds, or ices. For indeed the laws of structure hitherto ascertained by mineralogists have not shown us any essential difference between substances which crystallize habitually in symmetrical detached figures, seeming to be some favourite arrangement of the figures of their primary molecules; and those which, like ice, only under rare circumstances give clue to the forms of their true crystals, but habitually show themselves in accumulated mass, or complex and capricious involution. Of course the difference may be a question only of time; and the sea, cooled slowly enough, might build bergs of hexagonal ice-prisms as tall as Cleopatra's needle, and as broad as the tower of Windsor; but the time and temperature required,

by any given mineral, for its successful constructions of form, are of course to be noted among the conditions of its history, and stated in the account of its qualities.

14. Neither, hitherto, has any sufficient distinction been made between properly crystalline and properly cleavage planes.* The first great laws of crystalline form are given by Miller as equally affecting both; but the conditions of substance which have only so much crystalline quality as to break in directions fixed at given angles, are manifestly to be distinguished decisively from those which imply an effort in the substance to collect itself into a form terminated at symmetrical distances from a given centre. The distinction is practically asserted by the mineral itself, since it is seldom that any substance has a cleavage parallel to more than one or two of its planes: and it is forced farther on our notice by the ragged lustres of true cleavage planes like those of mica, opposed to the serene bloom of the crystalline surfaces formed by the edges of the folia.

15. Yet farther. The nature of cleavage planes in definitely crystalline minerals connects itself by imperceptible gradations with that of the surfaces produced by mechanical separation in their masses consolidating from fusion or solution. It is now thirty years, and more, since the question whether the forms of the gneissitic buttresses of Mont Blanc were owing to cleavage or stratification, became matter of debate between leading members of the Geological Society; and it remains to this day an undetermined one! In succeeding numbers of 'Deucalion,' I shall reproduce, according to my promise in the introduction, the chapters of 'Modern Painters' which first put this question into clear form; the drawings which had been previously given by de Saussure and other geologists having never been accurate enough to explain the niceties of rock structure to their readers, although, to their own eyes on this spot, the conditions of form had been perfectly clear. I see nothing to alter either in the text of these chapters, written during the years 1845 to 1850, or in the plates and diagrams by which they were illustrated; and

* See vol. i., chap. xiv., §§ 20–22.

hitherto, the course of geological discovery has given me, I regret to say, nothing to add to them : but the methods of microscopic research originated by Mr. Sorby, cannot but issue, in the hands of the next de Saussure, in some trustworthy interpretation of the great phenomena of Alpine form.

16. I have just enough space left in this chapter to give some illustrations of the modes of crystalline increment which are not properly subjects of mathematical definition ; but are variable, as in the case of the formations of ice above described, by accidents of situation, and by the modes and quantities of material supply.

17. More than a third of all known minerals crystallize in forms developed from original molecules which can be arranged in cubes and octahedrons ; and it is the peculiarity of these minerals that whatever the size of their crystals, so far as they are perfect, they are of equal diameter in every direction ; they may be square blocks or round balls, but do not become pillars or cylinders. A diamond, from which the crystalline figure familiar on our playing cards has taken its popular name, be it large or small, is still a diamond, in figure as well as in substance, and neither divides into a star, nor lengthens into a needle.

18. But the remaining two-thirds of mineral bodies resolve themselves into groups, which, under many distinctive conditions, have this in common,—that they consist essentially of *pillars* terminating in pyramids at both ends. A diamond of ordinary octahedric type may be roughly conceived as composed of two pyramids set base to base ; and nearly all minerals belonging to other systems than the cubic, as composed of two pyramids with a tower between them. The pyramids may be four-sided, six-sided, eight-sided ; the tower may be tall, or short, or, though rarely, altogether absent, leaving the crystal a diamond of its own sort ; nevertheless, the primal separation of the double pyramid from the true tower with pyramid at both ends, will hold good for all practice, and to all sound intelligence.

19. Now, so long as it is the law for a mineral, that how-

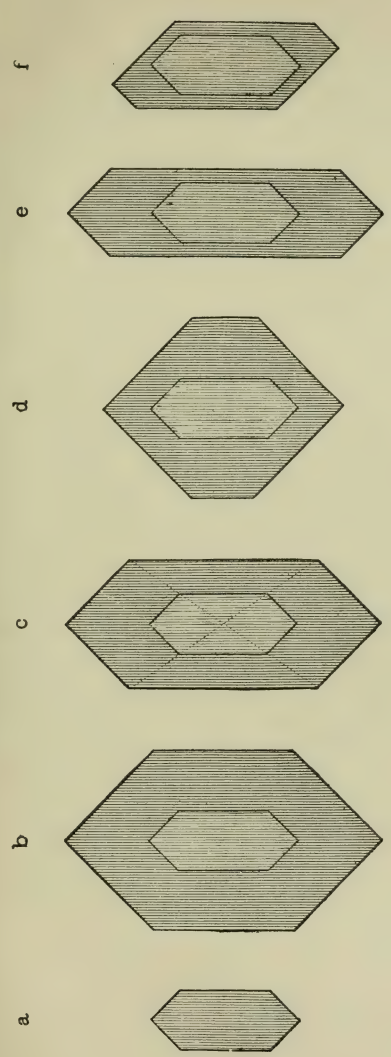


Fig 1.

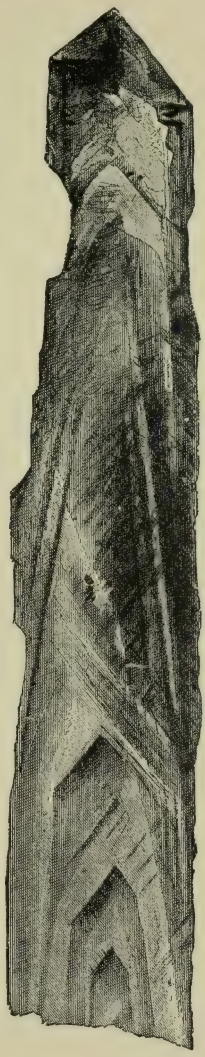


Fig. 2

PLATE X.—MODES OF CRYSTALLINE INCREMENT.

ever large it may be, its form shall be the same, we have only crystallographic questions respecting the modes of its increase. But when it has the choice whether it will be tall or short, stout or slender, and also whether it will grow at one end or the other, a number of very curious conditions present themselves, unconnected with crystallography proper, but bearing much on the formation and aspect of rocks.

20. Let *a*, fig. 1, plate X., be the section of a crystal formed by a square tower one-third higher than it is broad, and having a pyramid at each end half as high as it is broad. Such a form is the simplest general type of average crystalline dimension, not cubic, that we can take to start with.

Now if, as at *b*, we suppose the crystal to be enlarged by the addition of equal thickness or depth of material on all its surfaces,—in the figure its own thickness is added to each side,—as the process goes on, the crystal will gradually lose its elongated shape, and approximate more and more to that of a regular hexagon. If it is to retain its primary shape, the additions to its substance must be made on the diagonal lines dotted across the angles, as at *c*, and be always more at the ends than at the flanks. But it may chance to determine the additions wholly otherwise, and to enlarge, as at *d*, on the flanks instead of the points ; or, as at *e*, losing all relation to the original form, prolong itself at the extremities, giving little, or perhaps nothing, to its sides. Or, lastly, it may alter the axis of growth altogether, and build obliquely, as at *f*, on one or more planes in opposite directions.

21. All the effective structure and aspect of crystalline substances depend on these caprices of their aggregation. The crystal of amethyst of which a longitudinal section is given in plate X., fig. 2, is more visibly, by help of its amethyst staining,) but not more frequently or curiously, modified by accident than any common prism of rough quartz will be usually found on close examination ; but in this example, the various humours, advances, and pauses of the stone are all traced for us by its varying blush ; and it is seen to have raised itself in successive layers above the original pyramid—always thin at the sides, and oblique at the summit, and apparently endeav-

ouring to educate the rectilinear impulses of its being into compliance with a beautiful imaginary curve.

22. Of prisms more successful in this effort, and constructed finally with smoothly curved sides, as symmetrical in their entasis as a Greek pillar, it is easy to find examples in opaque quartz—(not in transparent *)—but no quartz crystal ever *bends* the vertical axis as it grows, if the prismatic structure is complete; while yet in the imperfect and fibrous state above spoken of, § 5, and mixed with clay in the flammeate forms of jasper, undulation becomes a law of its being!

23. These habits, faculties, and disabilities of common quartz are of peculiar interest when compared with the totally different nature and disposition of ice, though belonging to the same crystalline system. The rigidly and limitedly mathematical mind of Cloizeaux passes without notice the mystery, and the

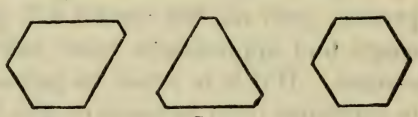


FIG. 6.

marvel, implied in his own brief statement of its elementary form "Prisme hexagonal *regulier*." Why 'regular'? All crystals belonging to the hexagonal system are necessarily regular, in the equality of their angles. But ice is regular also in *dimensions*. A prism of quartz or calcite may be of the form *a* on the section, Fig. 6,† or of the form *b*; but ice is always true—like *c*, as a bee's cell—'prisme regulier.'

So again, Cloizeaux tells us that ice habitually is formed in 'tables hexagonales *minces*.' But why thin?—and *how* thin? What proportion of surface to edge was in his mind as he wrote, undefined? The square plates of uranite, the hexagonal folia of mica, are 'minces' in a quite different sense. They can be seen separately, or in masses which are distinctly

* Smoky quartz, or even Cairngorm, will sometimes curve the sides parallel to the axis, but (I think) pure white quartz never.

† I think it best to number my woodcuts consecutively through the whole work, as the plates also; but fig. 5 is a long way back, p. 117, vol. i. Some further notes on it will be found in the next chapter.

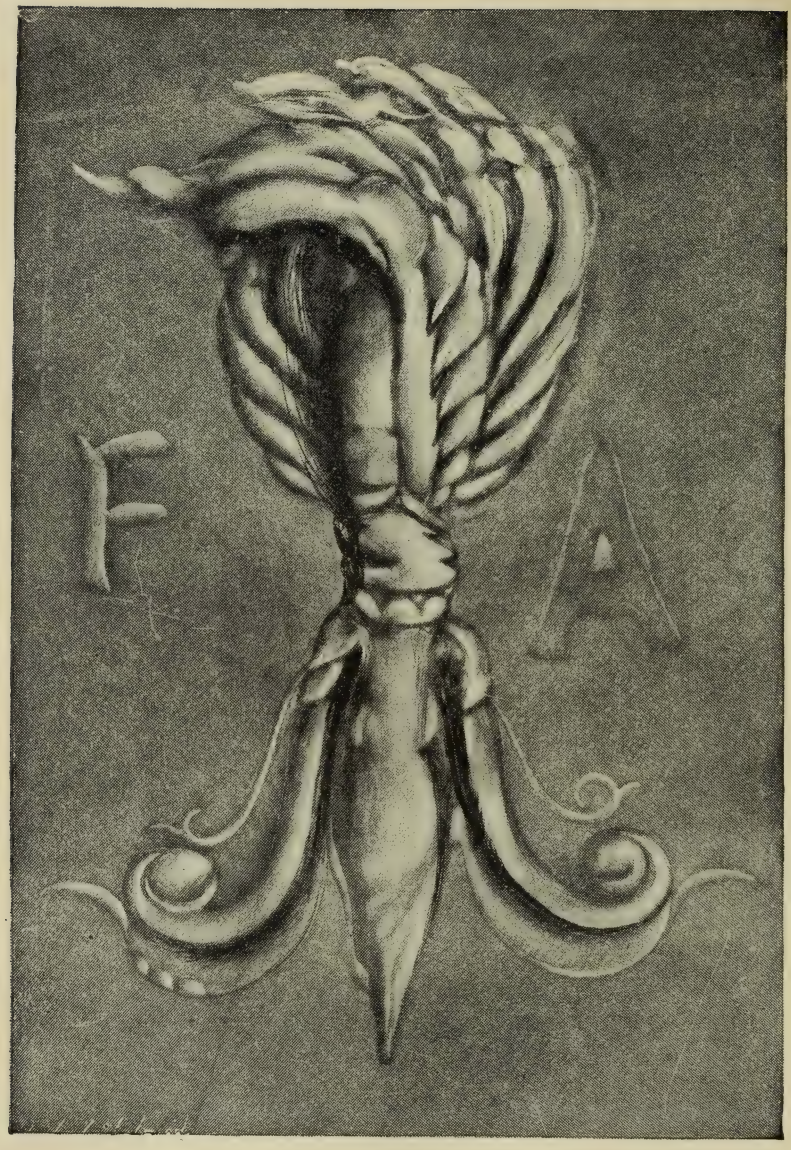


PLATE XI.—THE OLYMPIAN LIGHTNING.

separable. But the "prisme hexagonale mince, regulier" of ice cannot be split into thinner plates—cannot be built into longer prisms; but, as we have seen, when it builds, is fantastic in direction, sudden in force, endlessly complex in form.

24. Here, for instance, fig. 7, is the outline of one of the spiculæ of incipient surface ice, formed by sharp frost on calm water already cooled to the freezing point. I have seen literally clouds of surface ice woven of these barbed arrows, shot, —or breathed, across half a mile of lake in ten minutes. And every barb of them *itself* a miracle of structure, complex as an Alpine peak.

These spiculæ float with their barbs downwards, like keels, and form guiding ribs above like those of leaves, between which the entire surface of the water becomes laminated; but, as it does so, the spiculæ get pushed up into little mountain



FIG. 7.

ridges, always steeper on one side than the other—barbed on the steep side, laminated on the other—and radiating more or less trigonally from little central cones, which are raised above the water-surface with hollow spaces underneath.

And it is all done with 'prismes hexagonales reguliers'!

25. Done,—and sufficiently explained, in Professor Tyndall's imagination, by the poetical conception of 'six poles' for every hexagon of ice.* Perhaps!—if one knew first what a pole was, itself—and how many, attractive, or repulsive, to the east and to the west, as well as to the north and the south—one might institute in imaginative science—at one's pleasure;—thus also allowing a rose five poles for its five petals, and a wallflower four for its four, and a lily three, and a hawkweed thirteen. In the meantime, we will return to the safer guidance of primal mythology.

26. The opposite plate (XI.) has been both drawn and engraved, with very happy success, from a small Greek coin, a

* 'Forms of Water,' in the chapter on snow. The discovery is announced, with much self-applause, as an important step in science.

drachma of Elis, by my good publisher's son, Hugh Allen. It is the best example I know of the Greek type of lightning, grasped or gathered in the hand of Zeus. In ordinary coins or gems, it is composed merely of three flames or forked rays, alike at both extremities. But in this Eleian thunderbolt, when the letters F.A. (the old form of beginning the name of the Eleian nation with the digamma) are placed upright, the higher extremity of the thunderbolt is seen to be twisted, in sign of the whirlwind of electric storm, while its lower extremity divides into three symmetrical lobes, like those of a flower, with spiral tendrils from the lateral points: as constantly the honeysuckle ornament on vases, and the other double groups of volute completed in the Ionic capital, and passing through minor forms into the earliest recognizable types of the fleur-de-lys.

27. The intention of the twisted rays to express the action of storm is not questionable—"tres imbris torti radios, et alitis austri." But there can also be little doubt that the tranquillities of line in the lower divisions of the symbol are intended to express the vital and formative power of electricity in its terrestrial currents. If my readers will refer to the chapter in 'Proserpina' on the roots of plants, they will find reasons suggested for concluding that the root is not merely a channel of material nourishment to the plant, but has a vital influence by mere contact with the earth, which the Greek probably thought of as depending on the conveyance of terrestrial electricity. We know, to this day, little more of the great functions of this distributed fire than he: nor how much, while we subdue or pervert it to our vulgar uses, we are in every beat of the heart and glance of the eye, dependent, with the herb of the field and the crystal of the hills, on the aid of its everlasting force. If less than this was implied by the Olympian art of olden time, we have at least, since, learned enough to read, for ourselves his symbol, into the higher faith, that, in the hand of the Father of heaven, the lightning is not for destruction only; but glows, with a deeper strength than the sun's heat or the stars' light, through all the forms of matter, to purify them, to direct, and to save.

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KING OF THE GOLDEN RIVER



ADVERTISEMENT.

THE Publishers think it due to the Author of this Fairy Tale, to state the circumstances under which it appears.

THE KING OF THE GOLDEN RIVER was written in 1841, at the request of a very young lady, and solely for her amusement, without any idea of publication. It has since remained in the possession of a friend, to whose suggestion, and the passive assent of the Author, the Publishers are indebted for the opportunity of printing it.

The Illustrations, by Mr. Richard Doyle, will, it is hoped, be found to embody the Author's ideas with characteristic spirit.



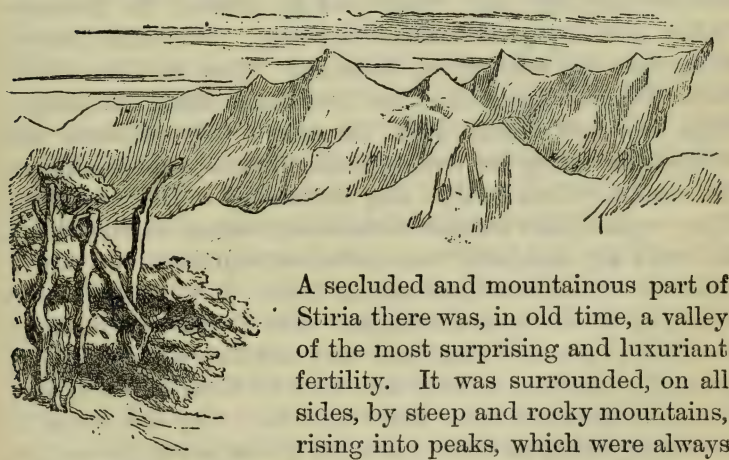
THE KING OF THE GOLDEN RIVER;

OR,

THE BLACK BROTHERS.

CHAPTER I.

How the Agricultural System of the Black Brothers was interfered with by Southwest Wind, Esquire.



A secluded and mountainous part of Stiria there was, in old time, a valley of the most surprising and luxuriant fertility. It was surrounded, on all sides, by steep and rocky mountains, rising into peaks, which were always covered with snow, and from which a number of torrents descended in constant cataracts. One of these fell westward, over the face of a crag so high, that, when the sun had set to everything else, and all below was darkness, his beams still shone full upon this waterfall, so that it looked like a shower of gold. It was, therefore, called, by the people of the neigh-

borhood, the Golden River. It was strange that none of these streams fell into the valley itself. They all descended on the other side of the mountains, and wound away through broad plains and by popular cities. But the clouds were drawn so constantly to the snowy hills, and rested so softly in the circular hollow, that in time of drought and heat, when all the country round was burnt up, there was still rain in the little valley ; and its crops were so heavy, and its hay so high, and its apples so red, and its grapes so blue, and its wine so rich, and its honey so sweet, that it was a marvel to every one who beheld it, and was commonly called the Treasure Valley.

The whole of this little valley belonged to three brothers, called Schwartz, Hans, and Gluck. Schwartz and Hans, the two elder brothers, were very ugly men, with over-hanging eyebrows and small dull eyes, which were always half shut, so that you couldn't see into *them*, and always fancied they saw very far into *you*. They lived by farming the Treasure Valley, and very good farmers they were. They killed everything that did not pay for its eating. They shot the blackbirds, because they pecked the fruit ; and killed the hedgehogs, lest they should suck the cows ; they poisoned the crickets for eating the crumbs in the kitchen ; and smothered the cicadas, which used to sing all summer in the lime trees. They worked their servants without any wages, till they would not work any more, and then quarrelled with them, and turned them out of doors without paying them. It would have been very odd, if with such a farm, and such a system of farming, they hadn't got very rich ; and very rich they *did* get. They generally contrived to keep their corn by them till it was very dear, and then sell it for twice its value ; they had heaps of gold lying about on their floors, yet it was never known that they had given so much as a penny or a crust in charity ; they never went to mass ; grumbled perpetually at paying tithes ; and were, in a word, of so cruel and grinding a temper, as to receive from all those with whom they had any dealings, the nickname of the "Black Brothers."

The youngest brother, Gluck, was as completely opposed,

in both appearance and character, to his seniors as could possibly be imagined or desired. He was not above twelve years old, fair, blue-eyed, and kind in temper to every living thing. He did not, of course, agree particularly well with his brothers, or rather, they did not agree with *him*. He was usually appointed to the honorable office of turnspit, when there was anything to roast, which was not often ; for, to do the brothers justice, they were hardly less sparing upon themselves than upon other people. At other times he used to clean the shoes, floors, and sometimes the plates, occasionally getting what was left on them, by way of encouragement, and a wholesome quantity of dry blows, by way of education.

Things went on in this manner for a long time. At last came a very wet summer, and everything went wrong in the country around. The hay had hardly been got in, when the haystacks were floated bodily down to the sea by an inundation ; the vines were cut to pieces with the hail ; the corn was all killed by a black blight ; only in the Treasure Valley, as usual, all was safe. As it had rain when there was rain nowhere else, so it had sun when there was sun nowhere else. Everybody came to buy corn at the farm, and went away pouring maledictions on the Black Brothers. They asked what they liked, and got it, except from the poor people, who could only beg, and several of whom were starved at their very door, without the slightest regard or notice.

It was drawing toward winter, and very cold weather, when one day the two elder brothers had gone out, with their usual warning to little Gluck, who was left to mind the roast, that he was to let nobody in, and give nothing out. Gluck sat down quite close to the fire, for it was raining very hard, and the kitchen walls were by no means dry or comfortable looking. He turned and turned, and the roast got nice and brown. "What a pity," thought Gluck, "my brothers never ask anybody to dinner. I'm sure, when they've got such a nice piece of mutton as this, and nobody else has got so much as a piece of dry bread, it would do their hearts good to have somebody to eat it with them."

Just as he spoke, there came a double knock at the house

door, yet heavy and dull, as though the knocker had been tied up—more like a puff than a knock.

"It must be the wind," said Gluck; "nobody else would venture to knock double knocks at our door."

No; it wasn't the wind: there it came again very hard, and what was particularly astounding, the knocker seemed to be in a hurry, and not to be in the least afraid of the consequences. Gluck went to the window, opened it, and put his head out to see who it was.

It was the most extraordinary looking little gentleman he had ever seen in his life. He had a very large nose, slightly brass-colored; his cheeks were very round, and very red, and might have warranted a supposition that he had been blowing a refractory fire for the last eight-and-forty hours; his eyes twinkled merrily through long silky eyelashes, his mustaches curled twice round like a corkscrew on each side of his mouth, and his hair, of a curious mixed pepper-and-salt color, descended far over his shoulders. He was about four feet six in height, and wore a conical-pointed cap of nearly the same altitude, decorated with a black feather some three feet long. His doublet was prolonged behind into something resembling a violent exaggeration of what is now termed a "swallow tail," but was much obscured by the swelling folds of an enormous black, glossy-looking cloak, which must have been very much too long in calm weather, as the wind, whistling round the old house, carried it clear out from the wearer's shoulders to about four times his own length.

Gluck was so perfectly paralyzed by the singular appearance of his visitor, that he remained fixed, without uttering a word, until the old gentleman, having performed another, and a more energetic concerto on the knocker, turned round to look after his fly-away cloak. In so doing he caught sight of Gluck's little yellow head jammed in the window, with its mouth and eyes very wide open indeed.

"Hollo!" said the little gentleman, "that's not the way to answer the door: I'm wet, let me in."

To do the little gentleman justice, he *was* wet. His feather hung down between his legs like a beaten puppy's tail drip-

ping like an umbrella; and from the ends of his mustaches the water was running into his waistcoat pockets, and out again like a mill stream.

"I beg pardon, sir," said Gluck, "I'm very sorry, but I really can't."

"Can't what!" said the old gentleman.

"I can't let you in, sir,—I can't, indeed; my brothers would beat me to death, sir, if I thought of such a thing. What do you want, sir?"

"Want?" said the old gentleman, petulantly. "I want fire, and shelter; and there's your great fire there blazing, crackling, and dancing on the walls, with nobody to feel it. Let me in, I say; I only want to warm myself."

Gluck had had his head, by this time, so long out of the window, that he began to feel it was really unpleasantly cold, and when he turned, and saw the beautiful fire rustling and roaring, and throwing long bright tongues up the chimney, as if it were licking its chops at the savory smell of the leg of mutton, his heart melted within him that it should be burning away for nothing. "He does look *very* wet," said little Gluck; "I'll just let him in for a quarter of an hour." Round he went to the door, and opened it; and as the little gentleman walked in, there came a gust of wind through the house, that made the old chimneys totter.

"That's a good boy," said the little gentleman. "Never mind your brothers. I'll talk to them."

"Pray, sir, don't do any such thing," said Gluck. "I can't let you stay till they come; they'd be the death of me."

"Dear me," said the old gentleman, "I'm very sorry to hear that. How long may I stay?"

"Only till the mutton's done, sir," replied Gluck, "and it's very brown."

Then the old gentleman walked into the kitchen, and sat himself down on the hob, with the top of his cap accommodated up the chimney, for it was a great deal too high for the roof.

"You'll soon dry there, sir," said Gluck, and sat down again to turn the mutton. But the old gentleman did *not*

dry there, but went on drip, drip, dripping among the cinders, and the fire fizzed, and sputtered, and began to look very black, and uncomfortable: never was such a cloak; every fold in it ran like a gutter.

"I beg pardon, sir," said Gluck, at length, after watching the water spreading in long, quicksilver-like streams over the floor for a quarter of an hour; "mayn't I take your cloak?"

"No, thank you," said the old gentleman.

"Your cap, sir?"



"I am all right, thank you," said the old gentleman, rather gruffly.

"But—sir—I'm very sorry," said Gluck, hesitatingly; "but—really, sir—you're—putting the fire out."

"It'll take longer to do the mutton, then," replied his visitor dryly.

Gluck was very much puzzled by the behavior of his guest; it was such a strange mixture of coolness and humility. He turned away at the string meditatively for another five minutes.

"That mutton looks very nice," said the old gentleman, at length. "Can't you give me a little bit?"

"Impossible, sir," said Gluck.

"I'm very hungry," continued the old gentleman: "I've had nothing to eat yesterday, nor to-day. They surely couldn't miss a bit from the knuckle!"

He spoke in so very melancholy a tone, that it quite melted Gluck's heart. "They promised me one slice to-day, sir," said he; "I can give you that, but not a bit more."

"That's a good boy," said the old gentleman again.

Then Gluck warmed a plate, and sharpened a knife. "I don't care if I do get beaten for it," thought he. Just as he had cut a large slice out of the mutton, there came a tremendous rap at the door. The old gentleman jumped off the hob, as if it had suddenly become inconveniently warm. Gluck fitted the slice into the mutton again, with desperate efforts at exactitude, and ran to open the door.

"What did you keep us waiting in the rain for?" said Schwartz, as he walked in, throwing his umbrella in Gluck's face. Ay! what for, indeed, you little vagabond?" said Hans, administering an educational box on the ear, as he followed his brother into the kitchen.

"Bless my soul!" said Schwartz, when he opened the door.

"Amen," said the little gentleman, who had taken his cap off, and was standing in the middle of the kitchen, bowing with the utmost possible velocity.

"Who's that?" said Schwartz, catching up a rolling-pin, and turning to Gluck, with a fierce frown.

"I don't know, indeed, brother," said Gluck, in great terror.

"How did he get in?" roared Schwartz.

"My dear brother," said Gluck, deprecatingly, "he was so *very* wet!"

The rolling-pin was descending on Gluck's head; but, at the instant, the old gentleman interposed his conical cap, on which it crashed with a shock that shook the water out of it all over the room. What was very odd, the rolling pin no sooner touched the cap, than it flew out of Schwartz's hand, spinning like a straw in a high wind, and fell into the corner at the further end of the room.

"Who are you, sir?" demanded Schwartz, turning upon him.

"What's your business?" snarled Hans.

"I'm a poor old man, sir," the little gentleman began very modestly, "and I saw your fire through the window, and begged shelter for a quarter of an hour."

"Have the goodness to walk out again, then," said Schwartz. "We've quite enough water in our kitchen, without making it a drying-house."

"It is a cold day to turn an old man out in, sir; look at



my gray hairs." They hung down to his shoulders, as I told you before.

"Ay!" said Hans, "there are enough of them to keep you warm. Walk!"

"I'm very, very hungry, sir; couldn't you spare me a bit of bread before I go?"

"Bread, indeed!" said Schwartz; "do you suppose we've nothing to do with our bread, but to give it to such red-nosed fellows as you?"

"Why don't you sell your feather?" said Hans, sneeringly. "Out with you."

"A little bit," said the old gentleman.

"Be off!" said Schwartz.

"Pray, gentlemen."

"Off, and be hanged!" cried Hans, seizing him by the collar. But he had no sooner touched the old gentleman's collar, than away he went after the rolling-pin, spinning round and round, till he fell into the corner on the top of it. Then Schwartz was very angry, and ran at the old gentleman to turn him out; but he also had hardly touched him, when away he went after Hans and the rolling-pin, and hit his head against the wall as he tumbled into the corner. And so there they lay, all three.

Then the old gentleman spun himself round with velocity in the opposite direction; continued to spin until his long cloak was all wound neatly about him; clapped his cap on his head, very much on one side (for it could not stand upright without going through the ceiling), gave an additional twist to his corkscrew mustaches, and replied with perfect coolness: "Gentlemen, I wish you a very good morning. At twelve o'clock to-night I'll call again; after such a refusal of hospitality as I have just experienced, you will not be surprised if that visit is the last I ever pay you."

"If ever I catch you here again," muttered Schwartz, coming, half frightened, out of the corner—but, before he could finish his sentence, the old gentleman had shut the house door behind him with a great bang: and there drove past the window, at the same instant, a wreath of ragged cloud, that whirled and rolled away down the valley in all manner of shapes; turning over and over in the air; and melting away at last in a gush of rain.

"A very pretty business, indeed, Mr. Gluck!" said Schwartz. "Dish the mutton, sir. If ever I catch you at such a trick again—bless me, why the mutton's been cut!"

"You promised me one slice, brother, you know," said Gluck.

"Oh! and you were cutting it hot, I suppose, and going to catch all the gravy. It'll be long before I promise you such a thing again. Leave the room, sir; and have the kindness to wait in the coal-cellar till I call you."

Gluck left the room melancholy enough. The brothers ate as much mutton as they could, locked the rest in the cupboard, and proceeded to get very drunk after dinner.

Such a night as it was! Howling wind, and rushing rain, without intermission. The brothers had just sense enough left to put up all the shutters, and double bar the door, before they went to bed. They usually slept in the same room. As the clock struck twelve, they were both awakened by a tremendous crash. Their door burst open with a violence that shook the house from top to bottom.

"What's that?" cried Schwartz, starting up in his bed.

"Only I," said the little gentleman.



The two brothers sat up on their bolster, and stared into the darkness. The room was full of water, and by a misty moonbeam, which found its way through a hole in the shutter, they could see in the midst of it, an enormous foam globe, spinning round, and bobbing up and down like a cork, on which, as on a most luxurious cushion, reclined the little old gentleman, cap and all. There was plenty of room for it now, for the roof was off.

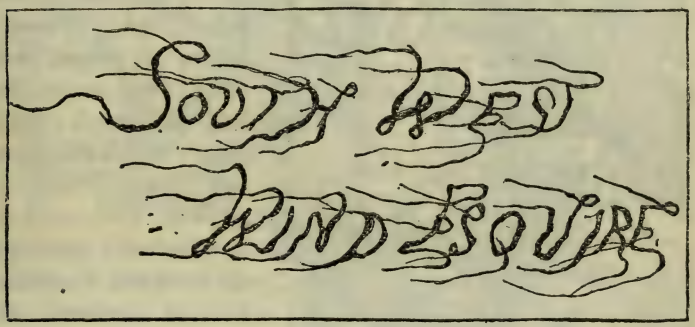
"Sorry to incommode you," said their visitor, ironically. "I'm afraid your beds are dampish; perhaps you had better go to your brother's room: I've left the ceiling on, there."

They required no second admonition, but rushed into Gluck's room, wet through, and in an agony of terror.

"You'll find my card on the kitchen table," the old gentleman called after them. "Remember, the *last* visit."

"Pray Heaven it may!" said Schwartz, shuddering. And the foam globe disappeared.

Dawn came at last, and the two brothers looked out of Gluck's little window in the morning. The Treasure Valley was one mass of ruin and desolation. The inundation had swept away trees, crops, and cattle, and left in their stead a waste of red sand, and gray mud. The two brothers crept shivering and horror-struck into the kitchen. The water had gutted the whole first floor; corn, money, almost every movable thing had been swept away, and there was left only a small white card on the kitchen table. On it, in large, breezy, long-legged letters, were engraved the words:



CHAPTER II.

Of the Proceedings of the Three Brothers after the Visit of Southwest Wind, Esquire; and how little Gluck had an Interview with the King of the Golden River.

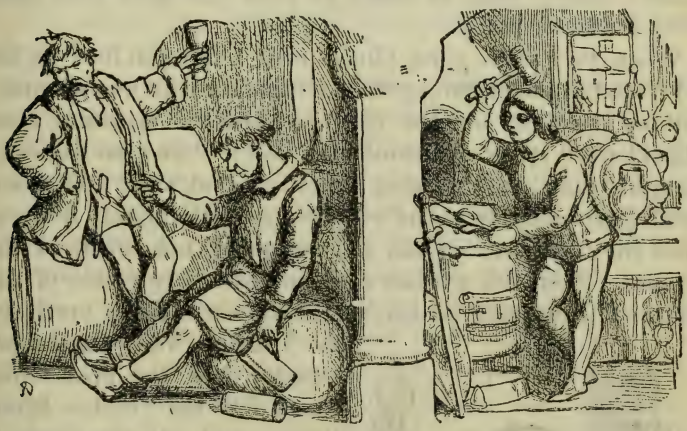


SOUTHWEST WIND, Esquire, was as good as his word. After the momentous visit above related, he entered the Treasure Valley no more; and, what was worse, he had so much influence with his relations, the West Winds in general, and used it so effectually, that they all adopted a similar line of conduct. So no rain fell in the valley from one year's end to another. Though everything remained green and flourishing in the plains below, the inheritance of the Three Brothers was a desert. What had once been the richest soil in the kingdom became a shifting heap of red sand; and the brothers, unable longer to contend with the adverse skies, abandoned their valueless patrimony in despair, to seek some means of gaining a livelihood among the cities and people of the plains. All their money was gone, and they

had nothing left but some curious old-fashioned pieces of gold plate, the last remnants of their ill-gotten wealth.

"Suppose we turn goldsmiths?" said Schwartz to Hans, as they entered the large city. "It is a good knave's trade; we can put a great deal of copper into the gold, without any one's finding it out."

The thought was agreed to be a very good one; they hired a furnace, and turned goldsmiths. But two slight circumstances affected their trade: the first, that people did not approve of the coppered gold; the second, that the two elder



brothers, whenever they had sold anything, used to leave little Gluck to mind the furnace, and go and drink out the money in the ale-house next door. So they melted all their gold, without making money enough to buy more, and were at last reduced to one large drinking-mug, which an uncle of his had given to little Gluck, and which he was very fond of, and would not have parted with for the world; though he never drank anything out of it but milk and water. The mug was a very odd mug to look at. The handle was formed of two wreaths of flowing golden hair, so finely spun that it looked more like silk than metal, and these wreaths descended into, and mixed with, a beard and whiskers of the same exquisite workmanship, which surrounded and decorated a very

fierce little face, of the reddest gold imaginable, right in the front of the mug, with a pair of eyes in it which seemed to command its whole circumference. It was impossible to drink out of the mug without being subjected to an intense gaze out of the side of these eyes; and Schwartz positively averred, that once, after emptying it, full of Rhenish, seventeen times, he had seen them wink! When it came to the mug's turn to be made into spoons, it half broke poor little Gluck's heart; but the brothers only laughed at him, tossed the mug into the melting-pot, and staggered out to the alehouse; leaving him, as usual, to pour the gold into bars, when it was all ready.

When they were gone, Gluck took a farewell look at his old friend in the melting-pot. The flowing hair was all gone; nothing remained but the red nose, and the sparkling eyes, which looked more malicious than ever. "And no wonder," thought Gluck, "after being treated in that way." He sauntered disconsolately to the window, and sat himself down to catch the fresh evening air, and escape the hot breath of the furnace. Now this window commanded a direct view of the range of mountains, which, as I told you before, overhung the Treasure Valley, and more especially of the peak from which fell the Golden River. It was just at the close of the day, and, when Gluck sat down at the window, he saw the rocks of the mountain-tops all crimson and purple with the sunset; and there were bright tongues of fiery cloud burning and quivering about them; and the river, brighter than all, fell, in a waving column of pure gold, from precipice to precipice, with the double arch of a broad purple rainbow stretched across it, flushing and fading alternately in the wreaths of spray.



"Ah!" said Gluck aloud, after he had looked at it for a

while, "if that river were really all gold, what a nice thing it would be."

"No, it wouldn't, Gluck," said a clear metallic voice, close at his ear.

"Bless me, what's that?" exclaimed Gluck, jumping up. There was nobody there. He looked round the room, and under the table, and a great many times behind him, but there was certainly nobody there, and he sat down again at the window. This time he didn't speak, but he couldn't help thinking again that it would be very convenient if the river were really all gold.

"Not at all, my boy," said the same voice, louder than before.

"Bless me!" said Gluck again, "what *is* that?" He looked again into all the corners, and cupboards, and then began turning round, and round, as fast as he could in the middle of the room, thinking there was somebody behind him, when the same voice struck again on his ear. It was singing now very merrily, "Lala-lira-la;" no words, only a soft running, effervescent melody, something like that of a kettle on the boil. Gluck looked out of the window. No, it was certainly in the house. Up-stairs, and down-stairs. No, it was certainly in that very room, coming in quicker time, and clearer notes, every moment. "Lala-lira-la." All at once it struck Gluck that it sounded louder near the furnace. He ran to the opening, and looked in: yes, he saw right, it seemed to be coming, not only out of the furnace, but out of the pot. He uncovered it, and ran back in a great fright, for the pot was certainly singing! He stood in the farthest corner of the room, with his hands up, and his mouth open, for a minute or two, when the singing stopped, and the voice became clear and pronunciative.

"Hollo!" said the voice.

Gluck made no answer.

"Hollo! Gluck, my boy," said the pot again.

Gluck summoned all his energies, walked straight up to the crucible, drew it out of the furnace, and looked in. The gold was all melted, and its surface as smooth and polished as

a river; but instead of reflecting little Gluck's head, as he looked in, he saw, meeting his glance from beneath the gold, the red nose and sharp eyes of his old friend of the mug, a thousand times redder and sharper than ever he had seen them in his life.

"Come, Gluck, my boy," said the voice out of the pot again, "I'm all right; pour me out."

But Gluck was too much astonished to do anything of the kind.

"Pour me out, I say," said the voice, rather gruffly.

Still Gluck couldn't move.

"*Will* you pour me out?" said the voice, passionately, "I'm too hot."

By a violent effort, Gluck recovered the use of his limbs, took hold of the crucible, and sloped it, so as to pour out the gold. But instead of a liquid stream, there came out, first, a pair of pretty little yellow legs, then some coat-tails, then a pair of arms stuck a-kimbo, and, finally, the well-known head of his friend the mug; all which articles, uniting as they rolled out, stood up energetically on the floor, in the shape of a little golden dwarf, about a foot and a half high.

"That's right!" said the dwarf, stretching out first his legs, and then his arms, and then shaking his head up and down, and as far around as it would go, for five minutes, without stopping; apparently with the view of ascertaining if he were quite correctly put together, while Gluck stood contemplating him in speechless amazement. He was dressed in a slashed doublet of spun gold, so fine in its texture, that the prismatic colors gleamed over it as if on a surface of mother of pearl; and, over this brilliant doublet, his hair and beard fell full half way to the ground, in waving curls, so exquisitely delicate, that Gluck could hardly tell where they ended; they seemed to melt into air. The features of the face, however, were by no means finished with the same delicacy; they were rather coarse, slightly inclining to coppery in complexion, and indicative, in expression, of a very pertinacious and intractable disposition in their small

proprietor. When the dwarf had finished his self-examination, he turned his small sharp eyes full on Gluck, and stared at him deliberately for a minute or two. "No, it wouldn't, Gluck, my boy," said the little man.

This was certainly rather an abrupt and unconnected mode



of commencing conversation. It might indeed be supposed to refer to the course of Gluck's thoughts, which had first produced the dwarf's observations out of the pot; but whatever it referred to, Gluck had no inclination to dispute the dictum.

"Wouldn't it, sir?" said Gluck, very mildly and submissively indeed.

"No," said the dwarf, conclusively, "No, it wouldn't." And with that, the dwarf pulled his cap hard over his brows, and took two turns, of three feet long, up and down the room, lifting his legs up very high, and setting them down very hard. This pause gave time for Gluck to collect his thoughts a little, and, seeing no great reason to view his diminutive visitor with dread, and feeling his curiosity overcome his amazement, he ventured on a question of peculiar delicacy.

"Pray, sir," said Gluck, rather hesitatingly, "were you my mug?"

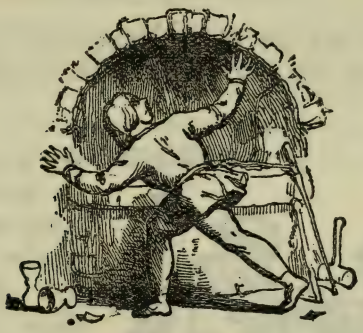
On which the little man turned sharp round, walked straight up to Gluck, and drew himself up to his full height. "I," said the little man, "am the King of the Golden River." Whereupon he turned about again, and took two more turns, some six feet long, in order to allow time for the consternation which this announcement produced in his auditor to evaporate. After which, he again walked up to Gluck, and stood still, as if expecting some comment on his communication.

Gluck determined to say something at all events. "I hope your Majesty is very well," said Gluck.

"Listen!" said the little man, deigning no reply to this polite inquiry. "I am the King of what you mortals call the Golden River. The shape you saw me in was owing to the malice of a stronger King, from whose enchantments you have this instant freed me. What I have seen of you, and your conduct to your wicked brothers, renders me willing to serve you; therefore, attend to what I tell you. Whoever shall climb to the top of that mountain, from which you see the Golden River issue, and shall cast into the stream at its source three drops of holy water, for him, and for him only, the river shall turn to gold. But no one failing in his first, can succeed in a second attempt; and if any one shall cast unholy water into the river, it will overwhelm him, and he will become a black stone." So saying, the King of the Golden River turned away, and deliberately walked into the centre of the hottest flame of the furnace. His figure became

red, white, transparent, dazzling—a blaze of intense light—rose, trembled, and disappeared. The King of the Golden River had evaporated.

"Oh!" cried poor Gluck, running to look up the chimney after him; "Oh, dear, dear, dear me! My mug! my mug! my mug!"



CHAPTER III.

How Mr. Hans set off on an Expedition to the Golden River, and how he prospered therein.



THE King of the Golden River had hardly made the extraordinary exit related in the last chapter, before Hans and Schwartz came roaring into the house, very savagely drunk. The discovery of the total loss of their last piece of plate had the effect of sobering them just enough to enable them to stand over Gluck, beating him very steadily for a quarter of an hour; at the expiration of which period they dropped into a couple of chairs, and requested to know what he had got to say for himself. Gluck told them his story, of which, of course, they did not believe a word. They beat him again, till their arms were tired, and staggered to bed. In the morning, however, the steadiness with which he adhered to his story obtained him some degree of credence; the immediate consequence of which was, that the two brothers, after wrangling a long time on the knotty question, which of them should try his fortune first, drew their swords and began fighting. The noise of the fray alarmed

the neighbors, who, finding they could not pacify the combatants, sent for the constable.

Hans, on hearing this, contrived to escape, and hid himself; but Schwartz was taken before the magistrate, fined for breaking the peace, and, having drunk out his last penny the evening before, was thrown into prison till he should pay.

When Hans heard this, he was much delighted, and determined to set out immediately for the Golden River. How to get the holy water was the question. He went to the priest, but the priest could not give any holy water to so abandoned a character. So Hans went to vespers in the evening for the



first time in his life, and, under pretence of crossing himself, stole a cupful, and returned home in triumph.

Next morning he got up before the sun rose, put the holy water into a strong flask, and two bottles of wine and some meat in a basket, slung them over his back, took his alpine staff in his hand, and set off for the mountains.

On his way out of the town he had to pass the prison, and as he looked in at the windows, whom should he see but Schwartz himself peeping out of the bars, and looking very disconsolate.

"Good morning, brother," said Hans; "have you any message for the King of the Golden River?"

Schwartz gnashed his teeth with rage, and shook the bars with all his strength; but Hans only laughed at him, and advising him to make himself comfortable till he came back again, shouldered his basket, shook the bottle of holy water

in Schwartz's face till it frothed again, and marched off in the highest spirits in the world.

It was, indeed, a morning that might have made any one happy, even with no Golden River to seek for. Level lines of dewy mist lay stretched along the valley, out of which rose the massy mountains—their lower cliffs in pale gray shadow, hardly distinguishable from the floating vapor, but gradually ascending till they caught the sunlight, which ran in sharp touches of ruddy color along the angular crags, and pierced, in long level rays, through their fringes of spear-like pine. Far above, shot up red splintered masses of castellated rock, jagged and shivered into myriads of fantastic forms,



with here and there a streak of sunlit snow, traced down their chasms like a line of forked lightning; and, far beyond, and far above all these, fainter than the morning cloud, but purer and changeless, slept, in the blue sky, the utmost peaks of the eternal snow.

The Golden River, which sprang from one of the lower and snowless elevations, was now nearly in shadow; all but the uppermost jets of spray, which rose like slow smoke above the undulating line of the cataract, and floated away in feeble wreathes upon the morning wind.

On this object, and on this alone, Hans' eyes and thoughts were fixed; forgetting the distance he had to traverse, he set off at an imprudent rate of walking, which greatly exhausted

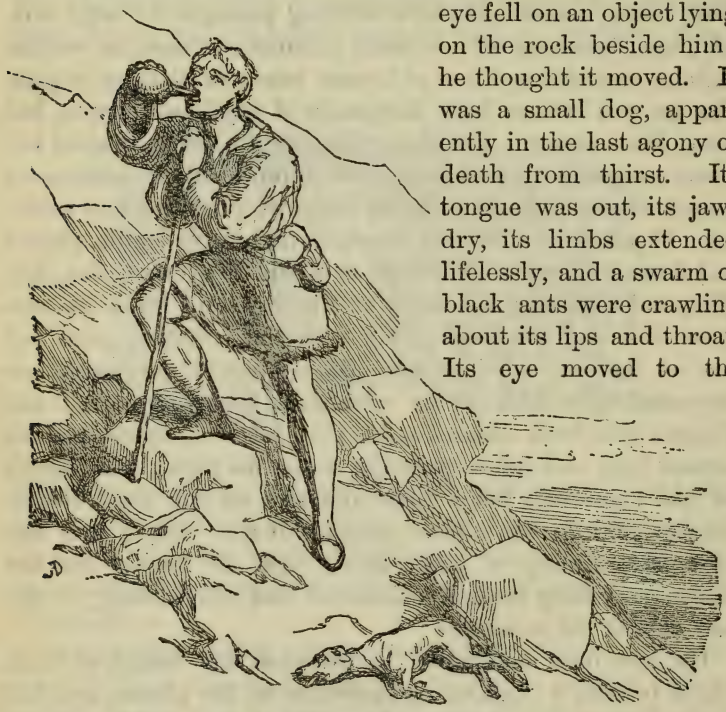
him before he had scaled the first range of the green and low hills. He was, moreover, surprised, on surmounting them, to find that a large glacier, of whose existence, notwithstanding his previous knowledge of the mountains, he had been absolutely ignorant, lay between him and the source of the Golden River. He entered on it with the boldness of a practised mountaineer; yet he thought he had never traversed so strange or so dangerous a glacier in his life. The ice was excessively slippery, and out of all its chasms came wild sounds of gushing water ; not monotonous or low, but changeful and loud, rising occasionally into drifting passages of wild melody, then breaking off into short melancholy tones, or sudden shrieks, resembling those of human voices in distress or pain. The ice was broken into thousands of confused shapes, but none, Hans thought, like the ordinary forms of splintered ice. There seemed a curious *expression* about all their outlines—a perpetual resemblance to living features, distorted and scornful. Myriads of deceitful shadows, and lurid lights, played and floated about and through the pale blue pinnacles, dazzling and confusing the sight of the traveller ; while his ears grew dull and his head giddy with the constant gush and roar of the concealed waters. These painful circumstances increased upon him as he advanced ; the ice crashed and yawned into fresh chasms at his feet, tottering spires nodded around him, and fell thundering across his path ; and though he had repeatedly faced these dangers on the most terrific glaciers, and in the wildest weather, it was with a new and oppressive feeling of panic terror that he leaped the last chasm, and flung himself, exhausted and shuddering, on the firm turf of the mountain.

He had been compelled to abandon his basket of food, which became a perilous incumbrance on the glacier, and had now no means of refreshing himself but by breaking off and eating some of the pieces of ice. This, however, relieved his thirst ; an hour's repose recruited his hardy frame, and with the indomitable spirit of avarice he resumed his laborious journey.

His way now lay straight up a ridge of bare red rocks,

without a blade of grass to ease the foot, or a projecting angle to afford an inch of shade from the south sun. It was past noon, and the rays beat intensely upon the steep path, while the whole atmosphere was motionless, and penetrated with heat. Intense thirst was soon added to the bodily fatigue with which Hans was now afflicted; glance after glance he cast on the flask of water which hung at his belt. "Three drops are enough," at last thought he; "I may, at least, cool my lips with it."

He opened the flask, and was raising it to his lips, when his eye fell on an object lying on the rock beside him; he thought it moved. It was a small dog, apparently in the last agony of death from thirst. Its tongue was out, its jaws dry, its limbs extended lifelessly, and a swarm of black ants were crawling about its lips and throat. Its eye moved to the



bottle which Hans held in his hand. He raised it, drank, spurned the animal with his foot, and passed on. And he did not know how it was, but he thought that a strange shadow had suddenly come across the blue sky.

The path became steeper and more rugged every moment;

and the high hill air, instead of refreshing him, seemed to throw his blood into a fever. The noise of the hill cataracts sounded like mockery in his ears ; they were all distant, and his thirst increased every moment. Another hour passed, and he again looked down to the flask at his side ; it was half empty ; but there was much more than three drops in it. He stopped to open it, and again, as he did so, something moved in the path above him. It was a fair child, stretched nearly lifeless on the rock, its breast heaving with thirst, its eyes closed, and its lips parched and burning. Hans eyed it deliberately, drank, and passed on. And a dark gray cloud came over the sun, and long, snake-like shadows crept up along the mountain sides. Hans struggled on. The sun was sinking, but its descent seemed to bring no coolness ; the leaden weight of the dead air pressed upon his brow and heart, but the goal was near. He saw the cataract of the Golden River springing from the hillside, scarcely five hundred feet above him. He paused for a moment to breathe, and sprang on to complete his task.

At this instant a faint cry fell on his ear. He turned, and saw a gray-haired old man extended on the rocks. His eyes were sunk, his features deadly pale, and gathered into an expression of despair. "Water!" he stretched his arms to Hans, and cried feebly ; "Water ! I am dying."

"I have none," replied Hans ; "thou hast had thy share of life." He strode over the prostrate body, and darted on. And a flash of blue lightning rose out of the east, shaped like a sword ; it shook thrice over the whole heaven, and left it dark with one heavy, impenetrable shade. The sun was setting ; it plunged toward the horizon like a red-hot ball.

The roar of the Golden River rose on Hans' ear. He stood at the brink of the chasm through which it ran. Its waves were filled with the red glory of the sunset : they shook their crests like tongues of fire, and flashes of bloody light gleamed along their foam. Their sound came mightier and mightier on his senses ; his brain grew giddy with the prolonged thunder. Shuddering he drew the flask from his girdle, and hurled it into the centre of the torrent. As he did so, an icy chill

shot through his limbs ; he staggered, shrieked, and fell. The waters closed over his cry. And the moaning of the river rose wildly into the night, as it gushed over



THE BLACK STONE.

CHAPTER IV.

How Mr. Schwartz set off on an Expedition to the Golden River, and how he prospered therein.



POOR little Gluck waited very anxiously alone in the house for Hans' return. Finding he did not come back, he was terribly frightened, and went and told Schwartz in the prison all that had happened. Then Schwartz was very much pleased, and said that Hans must certainly have been turned into a black stone, and he should have all the gold to himself. But Gluck was very sorry, and cried all night. When he got up in the morning, there was no bread in the house, nor any money: so Gluck went and hired himself to another goldsmith, and he worked so hard, and so neatly, and so long every day, that he soon got money enough together to pay his brother's fine, and he went and gave it all to Schwartz, and Schwartz got out of prison. Then Schwartz was quite pleased, and said he should have some of the gold of the river. But Gluck only begged he would go and see what had become of Hans.

Now, when Schwartz had heard that Hans had stolen the holy water, he thought to himself that such a proceeding might not be considered altogether correct by the King of the Golden River, and determined to manage matters better. So he took some more of Gluck's money, and went to a bad priest, who

gave him some holy water very readily for it. Then Schwartz was sure it was all quite right. So Schwartz got up early in the morning, before the sun rose, and took some bread and wine in a basket, and put his holy water in a flask, and set off for the mountains. Like his brother, he was much surprised at sight of the glacier, and had great difficulty in crossing it, even after leaving his basket behind him. The day was cloudless, but not bright: there was a heavy purple haze hanging over the sky, and the hills looked lowering and gloomy. And as Schwartz climbed the steep rock path, the thirst came upon him, as it had upon his brother, until he lifted his flask to his lips to drink. Then he saw the fair child lying near him on the rocks, and it cried to him, and moaned for water. "Water, indeed," said Schwartz; "I haven't half enough for myself," and passed on. And as he went he thought the sunbeams grew more dim, and he saw a low bank of black cloud rising out of the west; and when he had climbed for another hour the thirst overcame him again, and he would have drunk. Then he saw the old man lying before him on the path, and heard him cry out for



water. "Water, indeed," said Schwartz; "I haven't half enough for myself," and on he went.

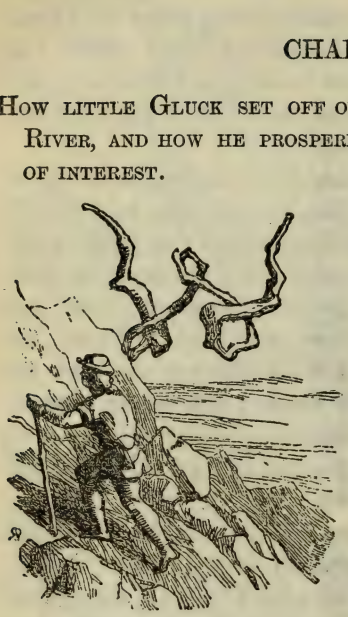
Then again the light seemed to fade from before his eyes, and he looked up, and, behold, a mist, of the color of blood, had come over the sun; and the bank of black cloud had risen very high, and its edges were tossing and tumbling like the waves of the angry sea. And they cast long shadows, which flickered over Schwartz's path.

Then Schwartz climbed for another hour, and again his thirst returned; and as he lifted his flask to his lips, he thought he saw his brother Hans lying exhausted on the path before him, and, as he gazed, the figure stretched its arms to him, and cried for water. "Ha, ha," laughed Schwartz, "are you there? remember the prison bars, my boy. Water, indeed! do you suppose I carried it all the way up here for *you?*" And he strode over the figure; yet, as he passed, he thought he saw a strange expression of mockery about its lips. And, when he had gone a few yards farther, he looked back; but the figure was not there.

And a sudden horror came over Schwartz, he knew not why; but the thirst for gold prevailed over his fear, and he rushed on. And the bank of black cloud rose to the zenith, and out of it came bursts of spiry lightning, and waves of darkness seemed to heave and float between their flashes, over the whole heavens. And the sky, where the sun was setting, was all level, and like a lake of blood; and a strong wind came out of that sky, tearing its crimson clouds into fragments, and scattering them far into the darkness. And, when Schwartz stood by the brink of the Golden River, its waves were black, like thunder clouds, but their foam was like fire; and the roar of the waters below and the thunder above met, as he cast the flask into the stream. And, as he did so, the lightning glared in his eyes, and the earth gave way beneath him, and the waters closed over his cry. And the moaning of the river rose wildly into the night, as it gushed over the

CHAPTER V.

How little Gluck set off on an Expedition to the Golden River, and how he prospered therein; with other matters of interest.



HEN Gluck found that Schwartz did not come back, he was very sorry, and did not know what to do. He had no money, and was obliged to go and hire himself again to the goldsmith, who worked him very hard, and gave him very little money. So, after a month or two, Gluck grew tired, and made up his mind to go and try his fortune with the Golden River. "The little king looked very kind," thought he. "I don't think he will turn me into a black stone." So he went to the priest, and the priest gave him some holy water as soon as he asked for it. Then Gluck took some bread in his basket, and the bottle of water, and set off very early for the mountains.

If the glacier had occasioned a great deal of fatigue to his brothers, it was twenty times worse for him, who was neither so strong nor so practised on the mountains. He had several very bad falls, lost his basket and bread, and was very much frightened at the strange noises under the ice. He lay a long time to rest on the grass, after he had got over, and began to climb the hill just in the hottest part of the day. When he had climbed for an hour, he got dreadfully thirsty, and was going to drink, like his brothers, when he saw an old man coming down the path above him, looking very feeble, and leaning on a staff. "My son," said the old man, "I am faint

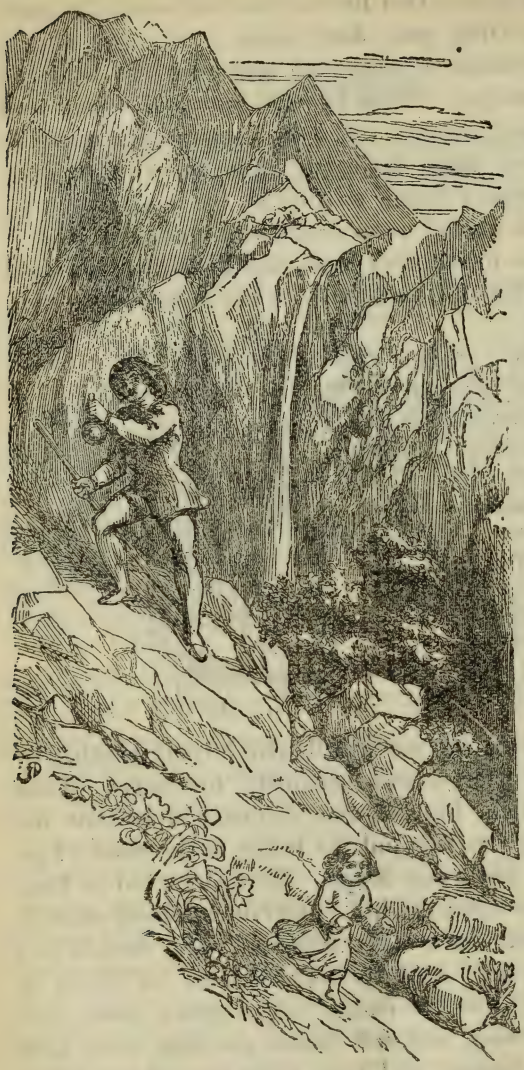
with thirst, give me some of that water." Then Gluck looked at him, and when he saw that he was pale and weary, he gave him the water; "Only, pray, don't drink it all," said Gluck. But the old man drank a great deal, and gave him back the bottle two-thirds empty. Then he bade him good speed, and Gluck went on again merrily. And the path became easier to his feet, and two or three blades of grass appeared upon it, and some grasshoppers began singing on the bank beside it; and Gluck thought he had never heard such merry singing.

Then he went on for another hour, and the thirst increased on him so that he thought he should be forced to drink. But,



as he raised the flask, he saw a little child lying panting by the roadside, and it cried out piteously for water. Then Gluck struggled with himself, and determined to bear the thirst a little longer; and he put the bottle to the child's lips, and it drank it all but a few drops. Then it smiled on him, and got up, and ran down the hill; and Gluck looked after it, till it became as small as a little star, and then turned and began climbing again. And then there were all kinds of sweet flowers growing on the rocks, bright green moss with pale pink starry flowers, and soft belled gentians, more blue than the sky at its deepest, and pure white transparent lilies. And crimson and purple butterflies darted hither and thither, and the sky sent down such pure light, that Gluck had never felt so happy in his life.

Yet, when he had climbed for another hour, his thirst became intolerable again; and, when he looked at his bottle, he saw that there were only five or six drops left in it, and he could not venture to drink. And, as he was hanging the flask to his belt again, he saw a little dog lying on the rocks, gasping for breath—just as Hans had seen it on the day of his ascent. And Gluck stopped and looked at it, and then at the Golden River, not five hundred yards above him; and he thought of the dwarf's words, "that no one could succeed, except in his first attempt;" and he tried to pass the dog, but it whined piteously, and Gluck stopped again. "Poor beastie," said Gluck, "it'll be dead when I come down again, if I don't help it." Then he looked closer and closer at it, and its eye turned on him so mournfully, that he



could not stand it. "Confound the King, and his gold too," said Gluck; and he opened the flask, and poured all the water into the dog's mouth.

The dog sprang up and stood on its hind legs. Its tail disappeared, its ears became long, longer, silky, golden; its nose became very red, its eyes became very twinkling; in three seconds the dog was gone, and before Gluck stood his old acquaintance, the King of the Golden River.

"Thank you," said the monarch; "but don't be frightened, it's all right;" for Gluck showed manifest symptoms of consternation at this unlooked-for reply to his last observation. "Why didn't you come before," continued the dwarf, "instead of sending me those rascally brothers of yours, for me to have the trouble of turning into stones? Very hard stones they make too."

"Oh dear me!" said Gluck, "have you really been so cruel?"

"Cruel!" said the dwarf, "they poured unholy water into my stream: do you suppose I'm going to allow that?"

"Why," said Gluck, "I am sure, sir—your majesty, I mean —they got the water out of the church-font."

"Very probably," replied the dwarf; "but," and his countenance grew stern as he spoke, "the water which has been refused to the cry of the weary and dying is unholy, though it had been blessed by every saint in heaven; and the water which is found in the vessel of mercy is holy, though it had been defiled with corpses."

So saying, the dwarf stooped and plucked a lily that grew at his feet. On its white leaves there hung three drops of clear dew. And the dwarf shook them into the flask which Gluck held in his hand. "Cast these into the river," he said, "and descend on the other side of the mountains into the Treasure Valley. And so good speed."

As he spoke, the figure of the dwarf became indistinct. The playing colors of his robe formed themselves into a prismatic mist of dewy light: he stood for an instant veiled with them as with the belt of a broad rainbow. The colors grew faint, the mist rose into the air; the monarch had evaporated.

And Gluck climbed to the brink of the Golden River, and its waves were as clear as crystal, and as brilliant as the sun. And, when he cast the three drops of dew into the stream, there opened where they fell a small circular whirlpool, into which the waters descended with a musical noise.

Gluck stood watching it for some time, very much disappointed, because not only the river was not turned into gold, but its waters seemed much diminished in quantity. Yet he obeyed his friend the dwarf, and descended the other side of the mountains, toward the Treasure Valley; and, as he went, he thought he heard the noise of water working its way under the ground. And, when he came in sight of the Treasure Valley, behold, a river, like the Golden River, was springing from a new cleft of the rocks above it, and was flowing in innumerable streams among the dry heaps of red sand.

And as Gluck gazed, fresh grass sprang beside the new streams, and creeping plants grew, and climbed among the moistening soil. Young flowers opened suddenly along the river-sides, as stars leap out when twilight is deepening, and thickets of myrtle, and tendrils of vine, cast lengthening shadows over the valley as they grew. And thus the Treasure Valley became a garden again, and the inheritance which had been lost by cruelty was regained by love.

And Gluck went and dwelt in the valley, and the poor were never driven from his door: so that his barns became full of corn, and his house of treasure. And, for him, the river had, according to the dwarf's promise, become a River of Gold.

And, to this day, the inhabitants of the valley point out the place where the three drops of holy dew were cast into the stream, and trace the course of the Golden River under the ground, until it emerges in the Treasure Valley. And at the top of the cataract of the Golden River are still to be seen two BLACK STONES, round which the waters howl mournfully every day at sunset; and these stones are still called by the people of the valley

THE BLACK BROTHERS.

DAME WIGGINS OF LEE.

AND HER

SEVEN WONDERFUL CATS.

A HUMOUROUS TALE.

WRITTEN PRINCIPALLY BY A LADY OF NINETY.

EMBELLISHED WITH EIGHTEEN COLOURED ENGRAVINGS.



LONDON:

PRINTED FOR

A. K. NEWMAN & Co. LEADENHALL-STREET.

1823.









DAME WIGGINS of Lee
Was a worthy old soul,
As e'er threaded a nee-
dle, or wash'd in a bowl:
She held mice and rats
In such antipa-thy;
That seven fine cats
Kept Dame Wiggins of Lee.



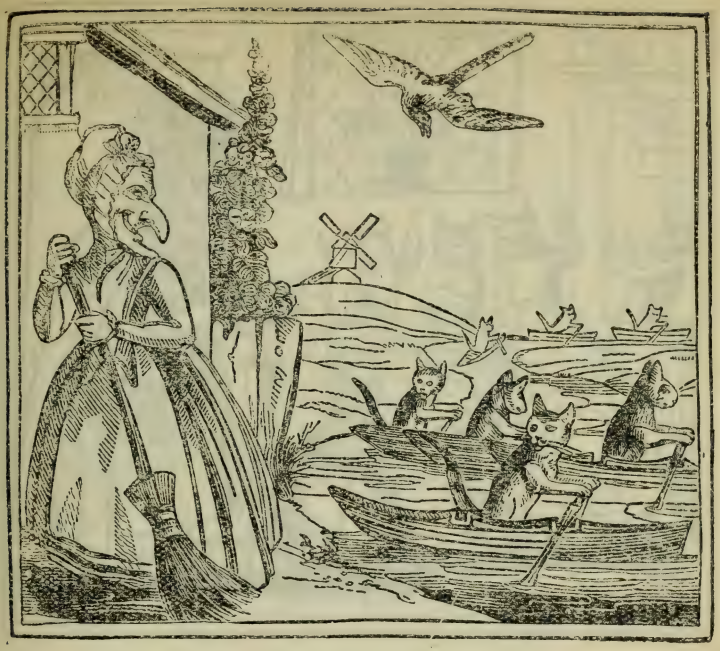
The rats and mice scared
By this fierce whisker'd crew,
The poor seven cats
Soon had nothing to do;
So, as any one idle
She ne'er loved to see,
She sent them to school,
Did Dame Wiggins of Lee.



The Master soon wrote
That they all of them knew
How to read the word "milk"
And to spell the word "mew."
And they all washed their faces
Before they took tea:
'Were there ever such dears!'
Said Dame Wiggins of Lee.



He had also thought well
To comply with their wish
To spend all their play-time
In learning to fish
For stitlings; they sent her
A present of three,
Which, fried, were a feast
For Dame Wiggins of Lee.



But soon she grew tired
Of living alone;
So she sent for her cats
From school to come home.
Each rowing a wherry,
Returning you see:
The frolic made merry
Dame Wiggins of Lee.



The Dame was quite pleas'd,
And ran out to market;
When she came back
They were mending the carpet.
The needle each handled
As brisk as a bee;
"Well done, my good cats,"
Said Dame Wiggins of Lee.



To give them a treat,
She ran out for some rice;
When she came back,
They were skating on ice.
"I shall soon see one down,
Aye, perhaps, two or three,
I'll bet half-a-crown,"
Said Dame Wiggins of Lee.



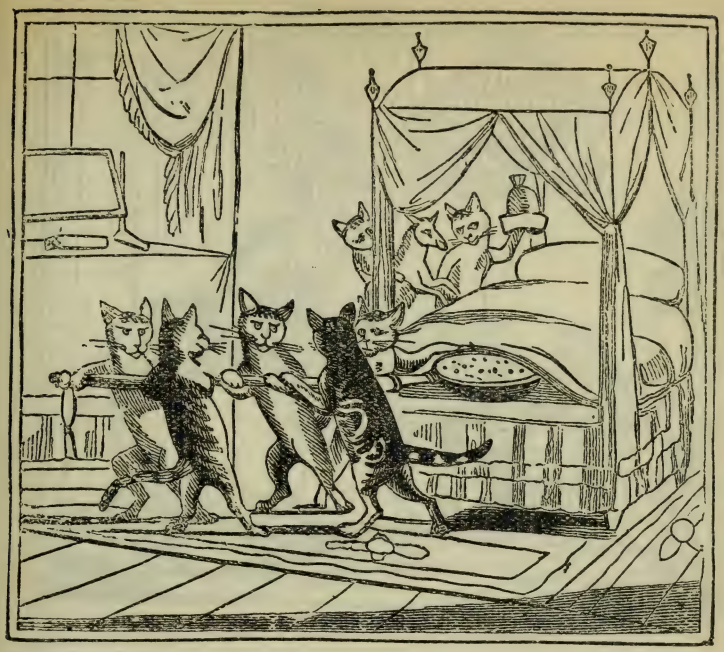
When spring-time came back
They had breakfast of curds;
And were greatly afraid
Of disturbing the birds.
"If you sit, like good cats,
All the seven in a tree,
They will teach you to sing!"
Said Dame Wiggins of Lee.



So they sat in a tree,
And said "Beautiful! Hark!"
And they listened and looked
In the clouds for the lark.
Then sang, by the fireside,
Symphonious-ly,
A song without words
To Dame Wiggins of Lee.



They called the next day
On the tomtit and sparrow,
And wheeled a poor sick lamb
Home in a barrow.
"You shall all have some sprats
For your humani-ty,
My seven good cats,"
Said Dame Wiggins of Lee.



While she ran to the field,
To look for its dam,
They were warming the bed
For the poor sick lamb:
They turn'd up the clothes
All as neat as could be;
"I shall ne'er want a nurse,"
Said Dame Wiggins of Lee.



She wished them good night,
And went up to bed:
When, lo! in the morning,
The cats were all fled.
But soon—what a fuss!
"Where can they all be?
Here, pussy, puss, puss!"
Cried Dame Wiggins of Lee.



The Dame's heart was nigh broke,
So she sat down to weep,
When she saw them come back
Each riding a sheep:
She fondled and patted
Each purring Tom-my:
"Ah! welcome, my dears,"
Said Dame Wiggins of Lee.



The Dame was unable
Her pleasure to smother;
To see the sick Lamb
Jump up to its mother.
In spite of the gout,
And a pain in her knee,
She went dancing about:
Did Dame Wiggins of Lee.



The Farmer soon heard
Where his sheep went astray,
And arrived at Dame's door
With his faithful dog Tray.
He knocked with his crook,
And the stranger to see,
Out of window did look
Dame Wiggins of Lee.



For their kindness he had them
All drawn by his team;
And gave them some field-mice,
And raspberry-cream.
Said he, "All my stock
You shall presently see;
For I honour the cats
Of Dame Wiggins of Lee"



He sent his maid out
For some muffins and crumpets;
And when he turn'd round
They were blowing of trumpets.
Said he, "I suppose,
She's as deaf as can be,
Or this ne'er could be borne
By Dame Wiggins of Lee."



To show them his poultry,
He turn'd them all loose,
When each nimbly leap'd
On the back of a Goose,
Which frighten'd them so
That they ran to the sea,
And half-drown'd the poor cats
Of Dame Wiggins of Lee.



For the care of his lamb,
And their comical pranks,
He gave them a ham
And abundance of thanks.
"I wish you good-day,
My fine fellows," said he;
"My compliments, pray,
To Dame Wiggins of Lee."



You see them arrived
At their Dame's welcome door;
They show her their presents,
And all their good store.
"Now come in to supper,
And sit down with me;
All welcome once more,"
Cried Dame Wiggins of Lee.

THE EAGLE'S NEST

TEN LECTURES

ON THE RELATION OF NATURAL SCIENCE TO ART

GIVEN BEFORE THE UNIVERSITY OF OXFORD
IN LENT TERM, 1872

PREFACE.

The following Lectures have been written, not with less care but with less pains, than any in former courses, because no labour could have rendered them exhaustive statements of their subjects, and I wished, therefore, to take from them every appearance of pretending to be so: but the assertions I have made are entirely deliberate, though their terms are unstudied; and the one which to the general reader will appear most startling, that the study of anatomy is destructive to art, is instantly necessary in explanation of the system adopted for the direction of my Oxford schools.

At the period when engraving might have become to art what printing became to literature, the four greatest point-draughtsmen hitherto known, Mantegna, Sandro Botticelli, Durer, and Holbein, occupied themselves in the new industry. All these four men were as high in intellect and moral sentiment as in art-power; and if they had engraved as Giotto painted, with popular and unscientific simplicity, would have left an inexhaustible series of prints, delightful to the most innocent minds, and strengthening to the most noble.

But two of them, Mantegna and Durer, were so polluted and paralyzed by the study of anatomy that the former's best works (the magnificent mythology of the Vices in the Louvre, for instance) are entirely revolting to all women and children; while Durer never could draw one beautiful female form or face; and, of his important plates, only four, the Melencholia, St. Jerome in his study, St. Hubert, and Knight and Death, are of any use for popular instruction, because in these only, the figures being fully draped or armed, he was enabled to

think and feel rightly, being delivered from the ghastly toil of bone-delineation.

Botticelli and Holbein studied the face first, and the limbs secondarily; and the works they have left are therefore without exception precious; yet saddened and corrupted by the influence which the contemporary masters of body-drawing exercised on them; and at last eclipsed by their false fame. I purpose, therefore, in my next course of lectures, to explain the relation of these two draughtsmen to other masters of design, and of engraving.

BRANTWOOD, *Sept. 2nd*, 1872.

THE EAGLE'S NEST.

LECTURE I.

OF WISDOM AND FOLLY IN ART.*

8th February, 1872.

1. The Lectures I have given hitherto, though, in the matter of them conscientiously addressed to my undergraduate pupils, yet were greatly modified in method by my feeling that this undergraduate class, to which I wished to speak, was indeed a somewhat imaginary one; and that, in truth, I was addressing a mixed audience, in greater part composed of the masters of the University, before whom it was my duty to lay down the principles on which I hoped to conduct, or prepare the way for the conduct of, these schools, rather than to enter on the immediate work of elementary teaching. But to-day, and henceforward most frequently, we are to be engaged in definite, and, I trust, continuous studies; and from this time forward, I address myself wholly to my undergraduate pupils; and wish only that my Lectures may be serviceable to them, and, as far as the subject may admit of it, interesting.

2. And, farther still, I must ask even my younger hearers to pardon me if I treat that subject in a somewhat narrow, and simple way. They have a great deal of hard work to do in other schools: in these, they must not think that I underrate their powers, if I endeavour to make everything as easy to

* The proper titles of these lectures, too long for page headings, are given in the Contents.

them as possible. No study that is worth pursuing seriously can be pursued without effort; but we need never make the effort painful merely for the sake of preserving our dignity. Also, I shall make my Lectures shorter than heretofore. What I tell you, I wish you to remember; and I do not think it possible for you to remember well much more than I can easily tell you in half-an-hour. I will promise that, at all events, you shall always be released so well within the hour, that you can keep any appointment accurately for the next. You will not think me indolent in doing this; for, in the first place, I can assure you, it sometimes takes me a week to think over what it does not take a minute to say: and, secondly, believe me, the least part of the work of any sound art-teacher must be his talking. Nay, most deeply also, it is to be wished that, with respect to the study which I have to bring before you to-day, in its relation to art, namely, natural philosophy, the teachers of it, up to this present century, had done less work in talking, and more in observing: and it would be well even for the men of this century, pre-eminent and accomplished as they are in accuracy of observation, if they had completely conquered the old habit of considering, with respect to any matter, rather what is to be said, than what is to be known.

3. You will, perhaps, readily admit this with respect to science; and believe my assertion of it with respect to art. You will feel the probable mischief, in both these domains of intellect, which must follow on the desire rather to talk than to know, and rather to talk than to do. But the third domain, into the midst of which, here, in Oxford, science and art seem to have thrust themselves hotly, like intrusive rocks, not without grim disturbance of the anciently fruitful plain;—your Kingdom or Princedom of Literature? Can we carry our statement into a third parallelism, for that? It is ill for Science, we say, when men desire to talk rather than to know; ill for Art, when they desire to talk rather than to do. Ill for Literature when they desire to talk,—is it? and rather than—what else? Perhaps you think that literature means nothing else than talking? that the triple powers of science, art, and scholarship, mean simply the powers of knowing,

doing, and saying. But that is not so in any wise. The faculty of saying or writing anything well, is an art, just as much as any other; and founded on a science as definite as any other. Professor Max Müller teaches you the science of language; and there are people who will tell you that the only art I can teach you myself, is the art of it. But try your triple parallelism once more, briefly, and see if another idea will not occur to you. In science, you must not talk before you know. In art, you must not talk before you do. In literature, you must not talk before you—think.

That is your third Province. The Kingdom of Thought, or Conception.

And it is entirely desirable that you should define to yourselves the three great occupations of men in these following terms:—

SCIENCE.....The knowledge of things, whether Ideal or Substantial.

ART.....The modification of Substantial things by our Substantial Power.

LITERATURE.....The modification of Ideal things by our Ideal Power.

4. But now observe. If this division be a just one, we ought to have a word for literature, with the 'Letter' left out of it. It is true that, for the most part, the modification of ideal things by our ideal power is not complete till it is expressed; nor even to ourselves delightful, till it is communicated. To letter it and label it—to inscribe and to word it rightly,—this is a great task, and it is the part of literature which can be most distinctly taught. But it is only the formation of its body. And the soul of it can exist without the body; but not at all the body without the soul; for that is true no less of literature than of all else in us or of us—"litera occidit, spiritus autem vivificat."

Nevertheless, I must be content to-day with our old word. We cannot say 'spiriture' nor 'animature,' instead of literature; but you must not be content with the vulgar interpre-

tation of the word. Remember always that you come to this University,—or, at least, your fathers came,—not to learn how to say things, but how to think them.

5. "How to think them! but that is only the art of logic," you perhaps would answer. No, again, not at all: logic is a method, not a power; and we have defined literature to be the modification of ideal things by ideal power, not by mechanical method. And you come to the University to get that power, or develope it; not to be taught the mere method of using it.

I say you come to the University for this; and perhaps some of you are much surprised to hear it! You did not know that you came to the University for any such purpose. Nay, perhaps you did not know that you had come to a University at all? You do not at this instant, some of you, I am well assured, know what a University means. Does it mean, for instance—can you answer me in a moment, whether it means—a place where everybody comes to learn something; or a place where somebody comes to learn everything? It means—or you are trying to make it mean—practically and at present, the first; but it means theoretically, and always, the last; a place where only certain persons come to learn *everything;* that is to say, where those who wish to be able to think, come to learn to think: not to think of mathematics only, nor of morals, nor of surgery, nor chemistry, but of everything, rightly.

6. I say you do not all know this; and yet, whether you know it or not,—whether you desire it or not,—to some extent the everlasting fitness of the matter makes the facts conform to it. For we have at present, observe, schools of three kinds, in operation over the whole of England. We have—I name it first, though, I am sorry to say, it is last in influence—the body consisting of the Royal Academy, with the Institute of Architects, and the schools at Kensington, and their branches; teaching various styles of fine or mechanical art. We have, in the second place, the Royal Society, as a central body; and, as its satellites, separate companies of men devoted to each several science: investigating, classing, and

describing facts with unwearied industry. And, lastly and chiefly, we have the great Universities, with all their subordinate public schools, distinctively occupied in regulating,—as I think you will at once admit,—not the language merely, nor even the language principally, but the modes of philosophical and imaginative thought in which we desire that youth should be disciplined, and age informed and majestic. The methods of language, and its range; the possibilities of its beauty, and the necessities for its precision, are all dependent upon the range and dignity of the unspoken conceptions which it is the function of these great schools of literature to awaken, and to guide.

7. The range and dignity of *conceptions!* Let us pause a minute or two at these words, and be sure we accept them.

First, what *is* a conception? What is this separate object of our work, as scholars, distinguished from artists, and from men of science?

We shall discover this better by taking a simple instance of the three agencies.

Suppose that you were actually on the plain of Pæstum, watching the drift of storm-cloud which Turner has here engraved.* If you had occupied yourself chiefly in schools of science, you would think of the mode in which the electricity was collected; of the influence it had on the shape and motion of the cloud; of the force and duration of its flashes, and of other such material phenomena. If you were an artist, you would be considering how it might be possible, with the means at your disposal, to obtain the brilliancy of the light, or the depth of the gloom. Finally, if you were a scholar, as distinguished from either of these, you would be occupied with the imagination of the state of the temple in former times; and as you watched the thunder-clouds drift past its columns, and the power of the God of the heavens put forth, as it seemed, in scorn of the departed power of the god who was thought by the heathen to shake the earth—the utterance of your mind would become, whether in actual

* Educational Series, No. 8, E.

words or not, such as that of the Psalmist:—"Clouds and darkness are round about Him—righteousness and judgment are the habitation of His throne." Your thoughts would take that shape, of their own accord, and if they fell also into the language, still your essential scholarship would consist, not in your remembering the verse, still less in your knowing that "judgment" was a Latin word, and "throne" a Greek one; but in your having power enough of conception, and elevation enough of character, to understand the nature of justice, and be appalled before the majesty of dominion.

8. You come, therefore, to this University, I repeat once again, that you may learn how to form conceptions of proper range or grasp, and proper dignity, or worthiness. Keeping then the ideas of a separate school of art, and separate school of science, what have you to learn in these? You would learn in the school of art, the due range and dignity of deeds; or doings—(I prefer the word to "makings," as more general); and in the school of science, you would have to learn the range and dignity of knowledges.

Now be quite clear about this: be sure whether you really agree with me or not.

You come to the School of Literature, I say, to learn the range and dignity of conceptions.

To the School of Art, to learn the range and dignity of Deeds.

To the School of Science to learn the range and dignity of Knowledges.

Do you agree to that, or not? I will assume that you admit my triple division; but do you think, in opposition to me, that a school of science is still a school of science, whatever sort of knowledge it teaches; and a school of art still a school of art, whatever sort of deed it teaches; and a school of literature still a school of literature, whatever sort of notion it teaches?

Do you think that? for observe, my statement denies that. My statement is, that a school of literature teaches you to have one sort of conception, not another sort; a school of art to do a particular sort of deed, not another sort; a school

of science to possess a particular sort of knowledge, not another sort.

9. I assume that you differ with me on this point;—some of you certainly will. Well then, let me go back a step. You will all go thus far with me, that—now taking the Greek words—the school of literature teaches you to have *νοῦς*, or conception of things, instead of *ἄνοια*,—no conception of things; that the school of art teaches you *τέχνη* of things, instead of *ἀτεχνία*; and the school of science, *ἐπιστήμη*, instead of *ἄγνοια* or 'ignorantia.' But, you recollect, Aristotle names two other faculties with these three,—*φρόνησις*, namely, and *σοφία*. He has altogether five, *τέχνη*, *ἐπιστήμη*, *φρόνησις*, *σοφία*, *νοῦς*; that is to say, in simplest English,—art, science, sense, wisdom, and wit. We have got our art, science, and wit, set over their three domains; and we old people send you young ones to those three schools, that you may not remain artless, scienceless, nor witless. But how of the sense, and the wisdom? What domains belong to these? Do you think our trefoil division should become cinquefoil, and that we ought to have two additional schools; one of Philosophia, and one of Philophronesia? If Aristotle's division were right it would be so. But his division is wrong, and he presently shows it is; for he tells you in the next page, (in the sentence I have so often quoted to you,) that "the virtue of art is the wisdom which consists in the wit of what is honourable." Now that is perfectly true; but it of course vitiates his division altogether. He divides his entire subject into *A*, *B*, *C*, *D*, and *E*; and then he tells you that the virtue of *A* is the *B* which consists in *C*. Now you will continually find, in this way, that Aristotle's assertions are right, but his divisions illogical. It is quite true that the virtue of art is the wisdom which consists in the wit of what is honourable; but also the virtue of science is the wit of what is honourable, and in the same sense, the virtue of *νοῦς*, or wit itself, consists in its *being* the wit or conception of what is honourable. *Σοφία*, therefore, is not only the *ἀρετή τέχνης*, but, in exactly the same sense, the *ἀρετή ἐπιστήμης*, and in the same sense, it is the *ἀρετή νόου*. And if not governed by *σοφία*, each school will teach the vicious con-

dition of its own special faculty. As σοφία is the ἀρετή of all three, so μωρία will be the κακία of all three.

10. Now in this, whether you agree with me or not, let me be at least sure you understand me. Σοφία, I say, is the virtue, μωρία is the vice, of all the three faculties of art, science, and literature. There is for each of them a negative and a positive side, as well as a zero. There is nescience for zero in science—with wise science on one side, foolish science on the other: ἀτεχνία for zero in art, with wise art on one side, foolish art on the other; and ἄνοια for zero in νοῦς, with wise νοῦς on one side, foolish νοῦς on the other.

11. You will smile at that last expression, 'foolish νοῦς.' Yet it is, of all foolish things, the commonest and deadliest. We continually complain of men, much more of women, for reasoning ill. But it does not matter how they reason, if they don't conceive basely. Not one person in a hundred is capable of seriously reasoning; the difference between man and man is in the quickness and quality, the accipitrine intensity, the olfactory choice, of his νοῦς. Does he hawk at game or carrion? What you choose to grasp with your mind is the question;—not how you handle it afterwards. What does it matter how you build, if you have bad bricks to build with; or how you reason, if every idea with which you begin is foul or false. And in general all fatal false reasoning proceeds from people's having some one false notion in their hearts, with which they are resolved that their reasoning *shall* comply.

But, for better illustration, I will now take my own special subject out of the three;—τέχνη. I have said that we have, for its zero, ἀτεχνία, or artlessness—in Latin, 'inertia,' opposed to 'ars.' Well, then, we have, from that zero, wise art on the one side, foolish art on the other; and the finer the art, the more it is capable of this living increase, or deadly defect. I will take, for example, first, a very simple art, then a finer one; but both of them arts with which most of you are thoroughly acquainted.

12. One of the simplest pieces of perfect art, which you are yourselves in the habit of practising, is the stroke of an oar given in true time. We have defined art to be the wise

modification of matter by the body (substantial things by substantial power, § 3). With a good oarstroke you displace a certain quantity of water in a wise way. Supposing you missed your stroke, and caught a crab, you would displace a certain quantity of water in a foolish way, not only ineffectually, but in a way the reverse of what you intended. The perfectness of the stroke implies not only absolutely accurate knowledge or science of the mode in which water resists the blade of an oar, but the having in past time met that resistance repeatedly with greater and greater rightness of adaptation to the end proposed. That end being perfectly simple,—the advance of the boat as far as possible with a given expenditure of strength, you at once recognize the degree in which the art falls short of, or the artlessness negatives your purpose. But your being 'σοφός,' as an oarsman, implies much more than this mere art founded on pure science. The fact of your being able to row in a beautiful manner depends on other things than the knowledge of the force of water, or the repeated practice of certain actions in resistance to it. It implies the practice of those actions under a resolved discipline of the body, involving regulation of the passions. It signifies submission to the authority, and amicable concurrence with the humours of other persons; and so far as it is beautifully done at last, absolutely signifies therefore a moral and intellectual rightness, to the necessary extent influencing the character honourably and graciously. This is the sophia, or wit, of what is most honourable, which is concerned in rowing, without which it must become no rowing, or the reverse of rowing.

13. Let us next take example in an art which perhaps you will think (though I hope not) much inferior to rowing, but which is in reality a much higher art—dancing. I have just told you (§ 11) how to test the rank of arts—namely, by their corruptibility, as you judge of the fineness of organic substance. The moria,* or folly, of rowing, is only ridiculous,

* If the English reader will pronounce the o in this word as in fold, and in sophia as in sop, but accenting the o, not the i, I need not any more disturb my pages with Greek types.

but the moria, or folly, of dancing, is much worse than ridiculous; and, therefore you may know that its sophia, or wisdom, will be much more beautiful than the wisdom of rowing. Suppose, for instance, a minuet danced by two lovers, both highly bred, both of noble character, and very much in love with each other. You would see, in that, an art of the most highly-finished kind, under the government of a sophia which dealt with the strongest passions, and most exquisite perceptions of beauty, possible to humanity.

14. For example of the contrary of these, in the same art, I cannot give you one more definite than that which I saw at, I think, the Gaiety Theatre—but it might have been at any London theatre now,—two years ago.

The supposed scene of the dance was Hell, which was painted in the background with its flames. The dancers were supposed to be demons, and wore black masks, with red tinsel for fiery eyes; the same red light was represented as coming out of their ears also. They began their dance by ascending through the stage on spring trap-doors, which threw them at once ten feet into the air; and its performance consisted in the expression of every kind of evil passion, in frantic excess.

15. You will not, I imagine, be at a loss to understand the sense in which the words sophia and moria are to be rightly used of these two methods of the same art. But those of you who are in the habit of accurate thinking will at once perceive that I have introduced a new element into my subject by taking an instance in a higher art. The folly of rowing consisted mainly in not being able to row; but this folly of dancing does not consist in not being able to dance, but in dancing well with evil purpose; and the better the dancing, the worse the result.

And now I am afraid I must tease you by asking your attention to what you may at first think a vain nicety in analysis, but the nicety is here essential, and I hope thoroughout this course of Lectures, not to be so troublesome to you again.

16. The mere negation of the power of art—the zero of it—you say, in rowing, is ridiculous. It is, of course, not less

ridiculous in dancing. But what do you mean by ridiculous? You mean contemptible, so as to provoke laughter. The contempt, in either case, is slight, in ordinary society; because, though a man may neither know how to row, or dance, he may know many other things. But suppose he lived where he could not know many other things? By a stormy sea-coast, where there could be no fresco-painting, in a poor country, where could be none of the fine arts connected with wealth, and in a simple, and primitive society, not yet reached by refinements of literature; but where good rowing was necessary for the support of life, and good dancing, one of the most vivid aids to domestic pleasure. You would then say that inability to row, or to dance, was far worse than ridiculous; that it marked a man for a good-for-nothing fellow, to be regarded with indignation, as well as contempt.

Now, remember, the inertia or zero of art always involves this kind of crime, or at least, pitiableness. The want of opportunity of learning takes away the moral guilt of artlessness; but the want of opportunity of learning such arts as are becoming in given circumstances, may indeed be no crime in an individual, but cannot be alleged in its defence by a nation. National ignorance of decent art is always criminal, unless in earliest conditions of society; and then it is brutal.

17. To that extent, therefore, culpably or otherwise, a kind of moria, or folly, is always indicated by the zero of art-power. But the true folly, or assuredly culpable folly, is in the exertion of our art-power in an evil direction. And here we need the finesse of distinction, which I am afraid will be provoking to you. Observe, first, and simply, that the possession of any art-power at all implies a sophia of *some* kind. These demons dancers, of whom I have just spoken, were earning their bread by severe and honest labour. The skill they possessed could not have been acquired but by great patience and resolute self-denial; and the very power with which they were able to express, with precision, states of evil passion, indicated that they had been brought up in a society which, in some measure, knew evil from good, and which had, therefore, some measure of good in the midst of it. Nay, the farther probability is,

that if you inquired into the life of these men, you would find that this demon dance had been invented by some one of them with a great imaginative power, and was performed by them not at all in preference of evil, but to meet the demand of a public whose admiration was capable of being excited only by violence of gesture, and vice of emotion.

18. In all cases, therefore, observe, where the opportunity of learning has been given ; the existence of the art-power indicates sophia, and its absence indicates moria. That great fact I endeavoured to express to you, two years since, in my third introductory Lecture. In the present course I have to show you the action of the final, or higher sophia which directs the skill of art to the best purposes ; and of the final, or lower moria which misdirects them to the worst. And the two points I shall endeavour to bring before you throughout will be these :—First, that the object of University teaching is to form your conceptions ;—not to acquaint you with arts, nor sciences. It is to give you a notion of what is meant by smith's work ; for instance—but not to make you blacksmiths. It is to give you a notion of what is meant by medicine, but not to make you physicians. The proper academy for blacksmiths is a blacksmith's forge ; the proper academy for physicians is an hospital. Here you are to be taken away from the forge, out of the hospital, out of all special and limited labour and thought, into the 'Universitas' of labour and thought, that you may in peace, in leisure, in calm of disinterested contemplation be enabled to conceive rightly the laws of nature, and the destinies of Man.

19. Then the second thing I have to show you is that over these three kingdoms of imagination, art, and science, there reigns a virtue of faculty, which from all time, and by all great people, has been recognized as the appointed ruler and guide of every method of labour, or passion of soul ; and the most glorious recompense of the toil, and crown of the ambition of man. "She is more precious than rubies, and all the things thou canst desire are not to be compared unto her. Lay fast hold upon her ; let her not go ; keep her, for she is thy life."

Are not these, and the innumerable words like to these, which you remember as I read them, strange words if Aristotle's statement respecting wisdom be true; that it never contemplates anything that can make men happy, "ἡ μὲν γὰρ σοφία οὐδέν θεωρεῖ ἐξ ὧν ἔσται εὐδαίμων ἄνθρωπος."

When we next meet, therefore, I purpose to examine what it is which wisdom, by preference, contemplates; what choice she makes among the thoughts and sciences open to her, and to what purpose she employs whatever science she may possess.

And I will briefly tell you, beforehand, that the result of the inquiry will be, that instead of regarding none of the sources of happiness, she regards nothing else; that she measures all worthiness by pure felicity; that we are permitted to conceive her as the cause even of gladness to God—"I was daily His delight, rejoicing always before Him,"—and that we are commanded to *know* her as queen of the populous world, "rejoicing in the habitable parts of the Earth, and whose delights are with the sons of Men."

LECTURE II.

OF WISDOM AND FOLLY IN SCIENCE.

10th February, 1872.

20. In my last lecture I asserted the positive and negative powers of literature, art, and science; and endeavoured to show you some of the relations of wise art to foolish art. To-day we are to examine the nature of these positive and negative powers in science; it being the object of every true school to teach the positive or constructive power, and by all means to discourage, reprove, and extinguish the negative power.

It is very possible that you may not often have thought of, or clearly defined to yourselves, this destructive or deadly character of some elements of science. You may indeed have

recognized with Pope that a little knowledge was dangerous, and you have therefore striven to drink deep ; you may have recognized with Bacon, that knowledge might partially become venomous ; and you may have sought, in modesty and sincerity, antidote to the inflating poison. But that there is a ruling spirit or σοφία, under whose authority you are placed, to determine for you, first the choice, and then the use of all knowledge whatsoever ; and that if you do not appeal to that ruler, much more if you disobey her, all science becomes to you ruinous in proportion to its accumulation, and as a net to your soul, fatal in proportion to the fineness of its thread, —this, I imagine, few of you, in the zeal of learning, have suspected, and fewer still have pressed their suspicion so far as to recognize or believe.

21. You must have nearly all heard of, many must have seen, the singular paintings ; some also may have read the poems, of William Blake. The impression that his drawings once made is fast, and justly, fading away, though they are not without noble merit. But his poems have much more than merit ; they are written with absolute sincerity, with infinite tenderness, and, though in the manner of them diseased and wild, are in verity the words of a great and wise mind, disturbed, but not deceived, by its sickness ; nay, partly exalted by it, and sometimes giving forth in fiery aphorism some of the most precious words of existing literature. One of these passages I will ask you to remember ; it will often be serviceable to you—

> "Doth the Eagle know what is in the pit,
> Or wilt thou go ask the Mole ?"

It would be impossible to express to you in briefer terms the great truth that there is a different kind of knowledge good for every different creature, and that the glory of the higher creatures is in ignorance of what is known to the lower.

22. And, above all, this is true of man ; for every other creature is compelled by its instinct to learn its own appointed lesson, and must centralize its perception in its own

being. But man has the choice of stooping in science beneath himself, and striving in science beyond himself; and the "Know thyself" is, for him, not a law to which he must in peace submit; but a precept which of all others is the most painful to understand, and the most difficult to fulfil. Most painful to understand, and humiliating; and this alike, whether it be held to refer to the knowledge beneath us, or above. For, singularly enough, men are always most conceited of the meanest science:—

> "Doth the Eagle know what is in the pit,
> Or wilt thou go ask the Mole?"

It is just those who grope with the mole and cling with the bat, who are vainest of their sight and of their wings.

23. "Know *thyself;*" but can it indeed be sophia,—can it be the noble wisdom, which thus speaks to science? Is not this rather, you will ask, the voice of the lower virtue of prudence, concerning itself with right conduct, whether for the interests of this world or of the future? Does not sophia regard all that is above and greater than man; and by so much as we are forbidden to bury ourselves in the mole's earth-heap, by so much also, are we not urged to raise ourselves towards the stars?

Indeed, it would at first seem so; nay, in the passage of the Ethics, which I proposed to you to-day for question, you are distinctly told so. There are, it is said, many different kinds of phronesis, by which every animal recognizes what is for its own good: and man, like any other creature, has his own separate phronesis telling him what he is to seek, and to do, for the preservation of his life: but above all these forms of prudence, the Greek sage tells you, is the sophia of which the objects are unchangeable and eternal, the methods consistent, and the conclusions universal: and this wisdom has no regard whatever to the things in which the happiness of man consists, but acquaints itself only with the things that are most honourable; so that "we call Anaxagoras and Thales, and such others, wise indeed, but not prudent, in

that they know nothing of what is for their own advantage, but know surpassing things, marvellous things, difficult things, and divine things."

24. Now here is a question which evidently touches *us* closely. We profess at this day to be an especially prudent nation ;—to regard only the things which are for our own advantage ; to leave to other races the knowledge of surpassing things, marvellous things, divine things, or beautiful things ; and in our exceeding prudence we are at this moment, refusing the purchase of, perhaps, the most interesting picture by Raphael in the world, and, certainly, one of the most beautiful works ever produced by the art-wisdom of man, for five-and-twenty thousand pounds, while we are debating whether we shall not pay three hundred millions to the Americans, as a fine for selling a small frigate to Captain Semmes. Let me reduce these sums from thousands of pounds, to single pounds ; you will then see the facts more clearly ; (there is not one person in a million who knows what a "million" means ; and that is one reason the nation is always ready to let its ministers spend a million or two in cannon, if they can show they have save saved twopence-halfpenny in tape). These are the facts then, stating pounds for thousands of pounds ; you are offered a Nativity, by Raphael, for five-and-twenty pounds, and cannot afford it ; but it is thought you may be bullied into paying three hundred thousand pounds, for having sold a ship to Captain Semmes. I do not say you will pay it. Still your present position is one of deprecation and humility, and that is the kind of result which you bring about by acting with what you call "practical common sense," instead of Divine wisdom.

25. Perhaps you think I am losing Aristotle's notion of common sense, by confusing it with our vulgar English one ; and that selling ships or ammunition to people whom we have not courage to fight either for or against, would not by Aristotle have been held a phronetic, or prudent proceeding. Be it so ; let us be certain then, if we can, what Aristotle does mean. Take the instance I gave you in the last lecture, of the various modes of feeling in which a master of literature, of

science, and of art, would severally regard the storm round the temples of Pæstum.

The man of science, we said, thought of the origin of the electricity; the artist of its light in the clouds, and the scholar, of its relation to the power of Zeus and Poseidon. There you have Episteme; Techne, and Nous; well, now what does Phronesis do?

Phronesis puts up his umbrella, and goes home as fast as he can. Aristotle's Phronesis at least does; having no regard for marvellous things. But are you sure that Aristotle's Phronesis is indeed the right sort of Phronesis? May there not be a commonsense, as well as an art, and a science, under the command of sophia? Let us take an instance of a more subtle kind.

26. Suppose that two young ladies, (I assume in my present lectures, that none are present, and that we may say among ourselves what we like; and we do like, do we not, to suppose that young ladies excel us only in prudence, and not in wisdom?) let us suppose that two young ladies go to the observatory on a winter night, and that one is so anxious to look at the stars that she does not care whether she gives herself cold, or not; but the other is prudent, and takes care, and looks at the stars only as long as she can without catching cold. In Aristotle's mind the first young lady would properly deserve the name of Sophia and the other that of Prudence. But in order to judge them fairly, we must assume that they are acting under exactly the same conditions. Assume that they both equally desire to look at the stars; then, the fact that one of them stops when it would be dangerous to look longer, does not show that she is less wise,—less interested, that is to say, in surpassing and marvellous things;—but it shows that she has more self-command, and is able therefore to remember what the other does not think of. She is equally wise, and more sensible. But suppose that the two girls are originally different in disposition; and that the one, having much more imagination than the other, is more interested in these surpassing and marvellous things; so that the self-command, which is enough to stop the other, who cares little for the

stars, is not enough to stop her, who cares much for them;—you would say, then, that, both the girls being equally sensible, the one that caught cold was the wisest.

27. Let us make a farther supposition. Returning to our first condition, that both the girls desire equally to look at the stars; let us put it now that both have equal self-command, and would therefore, supposing no other motives were in their minds, together go on star-gazing, or together stop star-gazing; but that one of them has greater consideration for her friends than the other, and though she would not mind catching cold for her own part, would mind it much for fear of giving her mother trouble. She will leave the stars first, therefore; but should we be right now in saying that she was only more sensible than her companion, and not more wise? This respect for the feelings of others, this understanding of her duty towards others, is a much higher thing than the love of stars. It is an imaginative knowledge, not of balls of fire or differences of space; but of the feelings of living creatures, and of the forces of duty by which they justly move. This is a knowledge, or perception, therefore, of a thing more surpassing and marvellous than the stars themselves, and the grasp of it is reached by a higher sophia.

28. Will you have patience with me for one supposition more? We may assume the attraction of the spectacle of the heavens to be equal in degree, and yet, in the minds of the two girls, it may be entirely different in kind. Supposing the one versed somewhat in abstract Science, and more or less acquainted with the laws by which what she now sees may be explained; she will probably take interest chiefly in questions of distance and magnitude, in varieties of orbit, and proportions of light. Supposing the other not versed in any science of this kind, but acquainted with the traditions attached by the religion of dead nations to the figures they discerned in the sky: she will care little for arithmetical or geometrical matters, but will probably receive a much deeper emotion, from witnessing in clearness what has been the amazement of so many eyes long closed; and recognizing the same lights, through the same darkness, with innocent shepherds and hus-

bandmen, who knew only the risings and settings of the immeasurable vault, as its lights shone on their own fields or mountains ; yet saw true miracle in them, thankful that none but the Supreme Ruler could bind the sweet influences of Pleiades, or loose the bands of Orion. I need not surely tell you, that in this exertion of the intellect and the heart, there would be a far nobler sophia than any concerned with the analysis of matter, or the measurement of space.

29. I will not weary you longer with questions, but simply tell you, what you will find ultimately to be true, that sophia is the form of thought, which makes common sense unselfish, —knowledge unselfish,—art unselfish,—and wit and imagination unselfish. Of all these, by themselves, it is true that they are partly venomous ; that, as knowledge puffeth up, so does prudence—so does art—so does wit ; but, added to all these, wisdom, or (you may read it as an equivalent word), added to all these—charity, edifieth.

30. Note the word ; builds forward, or builds up, and builds securely because on modest and measured foundation, wide, though low, and in the natural and living rock.

Sophia is the faculty which recognizes in all things their bearing upon life, in the entire sum of life that we know, bestial and human; but which, understanding the appointed objects of that life, concentrates its interest and its power on Humanity, as opposed on the one side to the Animalism which it must rule, and distinguished on the other side from the Divinity which rules it, and which it cannot imagine.

It is as little the part of a wise man to reflect much on the nature of beings above him, as of beings beneath him. It is immodest to suppose that he can conceive the one, and degrading to suppose that he should be busied with the other. To recognize his everlasting inferiority, and his everlasting greatness ; to know himself, and his place ; to be content to submit to God without understanding Him ; and to rule the lower creation with sympathy and kindness, yet neither sharing the passion of the wild beast, nor imitating the science of the Insect ;—this you will find is to be modest towards God, gentle to His creatures, and wise for himself.

31. I think you will now be able to fasten in your minds, first the idea of unselfishness, and secondly, that of modesty, as component elements of sophia ; and having obtained thus much, we will at once make use of our gain, by rendering more clear one or two points respecting its action on art, that we may then see more surely its obscurer function in science.

It is absolutely unselfish, we say, not in the sense of being without desire, or effort to gratify that desire ; on the contrary, it longs intensely to see, or know the things it is rightly interested in. But it is not interested specially in itself. In the degree of his wisdom, an artist is unconcerned about his work as his own ;—concerned about it only in the degree in which he would be, if it were another man's—recognizing its precise value, or no value, from that outer stand-point. I do not think, unless you examine your minds very attentively, that you can have any conception of the difficulty of doing this. Absolutely to do it is impossible, for we are all intended by nature to be a little unwise, and to derive more pleasure, therefore, from our own success than that of others. But the intense degree of the difference is usually unmeasured by us. In preparing the drawings for you to use as copies in these schools, my assistant and I are often sitting beside each other ; and he is at work, usually, on the more important drawing of the two. I so far recognize that greater importance, when it exists, that if I had the power of determining which of us should succeed, and which fail, I should be wise enough to choose his success rather than my own. But the actual effect on my own mind, and comfort, is very different in the two cases. If *he* fails, I am sorry, but not mortified ;—on the contrary, perhaps a little pleased. I tell him, indulgently, 'he will do better another time,' and go down with great contentment to my lunch. But, if *I* fail, though I would rather, for the sake of the two drawings, have had it so, the effect on my temper is very different. I say, philosophically, that it was better so—but I can't eat any lunch.

32. Now, just imagine what this inherently selfish passion —unconquerable as you will find it by the most deliberate and maintained efforts—fancy what it becomes, when, instead of

striving to subdue, we take every means in our power to increase and encourage it; and when all the circumstances around us concur in the deadly cultivation. In all base schools of Art, the craftsman is dependent for his bread on originality; that is to say, on finding in himself some fragment of isolated faculty, by which his work may be recognized as distinct from that of other men. We are ready enough to take delight in our little doings, without any such stimulus; —what must be the effect of the popular applause which continually suggests that the little thing we can separately do is as excellent as it is singular! and what the effect of the bribe, held out to us through the whole of life, to produce,—it being also at our peril *not* to produce—something different from the work of our neighbours? In all great schools of art these conditions are exactly reversed. An artist is praised in these, not for what is different in him from others, nor for solitary performance of singular work; but only for doing most strongly what all are endeavouring; and for contributing, in the measure of his strength, to some great achievement, to be completed by the unity of multitudes, and the sequence of ages.

33. And now, passing from art to science, the unselfishness of sophia is shown by the value it therein attaches to every part of knowledge, new or old, in proportion to its real utility to mankind, or largeness of range in creation. The selfishness which renders sophia impossible, and enlarges the elastic and vaporous kingdom of folly, is shown by our caring for knowledge only so far as we have been concerned in its discovery, or are ourselves skilled and admired in its communication. If there is an art which "puffeth up," even when we are surround by magnificence of achievement of past ages, confessedly not by us to be rivalled, how much more must there be a science which puffeth up, when, by the very condition of science, it must be an advance on the attainments of former time, and however slight, or however slow, is still always as the leaf of a pleasant spring compared to the dried branches of years gone by? And, for the double calamity of the age in which we live, it has chanced that the demand of the vulgar

and the dull for originality in Art, is associated with the demand of a sensual economy for originality in science ; and the praise which is too readily given always to discoveries that are new, is enhanced by the reward which rapidity of communication now ensures to discoveries that are profitable. What marvel if future time shall reproach us with having destroyed the labours, and betrayed the knowledge of the greatest nations and the wisest men, while we amused ourselves with fantasy in art, and with theory in science : happy, if the one was idle without being vicious, and the other mistaken without being mischievous. Nay, truth, and success, are often to us more deadly than error. Perhaps no progress more triumphant has been made in any science than that of Chemistry ; but the practical fact which will remain for the contemplation of the future, is that we have lost the art of painting on glass, and invented gun-cotton and nitro-glycerine. "Can you imagine," the future will say, "those English fools of the nineteenth century, who went about putting up memorials of themselves in glass which they could not paint, and blowing their women and children to pieces with cartridges they would not fight with ?"

34. You may well think, gentlemen, that I am unjust and prejudiced in such sayings ;—you may imagine that when all our mischievous inventions have done their worst, and the wars they provoked by cowardice have been forgotten in dishonour, our great investigators will be remembered, as men who laid first the foundations of fruitful knowledge, and vindicated the majesty of inviolable law. No, gentlemen ; it will not be so. In a little while, the discoveries of which we are now so proud will be familiar to all. The marvel of the future will not be that we should have discerned them, but that our predecessors were blind to them. We may be envied, but shall not be praised, for having been allowed first to perceive and proclaim what could be concealed no longer. But the misuse we made of our discoveries will be remembered against us, in eternal history ; our ingenuity in the vindication, or the denial, of species, will be disregarded in the face of the fact that we destroyed, in civilized Europe, every

rare bird and secluded flower; our chemistry of agriculture will be taunted with the memories of irremediable famine; and our mechanical contrivance will only make the age of the mitrailleuse more abhorred than that of the guillotine.

35. Yes, believe me, in spite of our political liberality, and poetical philanthropy; in spite of our almshouses, hospitals, and Sunday-schools; in spite of our missionary endeavours to preach abroad what we cannot get believed at home; and in spite of our wars against slavery, indemnified by the presentation of ingenious bills,—we shall be remembered in history as the most cruel, and therefore the most unwise, generation of men that ever yet troubled the earth:—the most cruel in proportion to their sensibility,—the most unwise in proportion to their science. No people, understanding pain, ever inflicted so much: no people, understanding facts, ever acted on them so little. You execrate the name of Eccelin of Padua, because he slew two thousand innocent persons to maintain his power; and Dante cries out against Pisa that she should be sunk in the sea, because, in revenge for treachery, she put to death, by the slow pangs of starvation, not the traitor only, but his children. But we men of London, we of the modern Pisa, slew, a little while since, *five hundred* thousand men instead of *two* thousand—(I speak in official terms, and know my numbers)—these we slew, all guiltless; and these we slew, not for defence, nor for revenge, but most literally in *cold* blood; and these we slew, fathers and children together, by slow starvation—simply because, while we contentedly kill our own children in competition for places in the Civil Service, we never ask, when once they have got the places, whether the Civil Service is done.

36. That was our missionary work in Orissa, some three or four years ago;—our Christian miracle of the five loaves, assisted as we are in its performance, by steam-engines for the threshing of the corn, and by railroads for carrying it, and by proposals from English noblemen to cut down all the trees in England, for better growing it. That, I repeat, is what we did, a year or two ago; what are we doing now? Have any of you chanced to hear of the famine in Persia?

Here, with due science, we arrange the roses in our botanic garden, thoughtless of the country of the rose. With due art of horticulture, we prepare for our harvest of peaches;—it might perhaps seriously alarm us to hear, next autumn, of a coming famine of peaches. But the famine of all things, in the country of the peach—do you know of it, care for it:—quaint famine that it is, in the fruitfullest, fairest, richest of the estates of earth; from which the Magi brought their treasures to the feet of Christ?

How much of your time, scientific faculty, popular literature, have been given, since this year began, to ascertain what England can do for the great countries under her command, or for the nations that look to her for help: and how much to discuss the chances of a single impostor's getting a few thousand a year?

Gentlemen, if your literature, popular and other; or your art, popular and other; or your science, popular and other, is to be eagle-eyed, remember that question I to-day solemnly put to you—will you hawk at game or carrion? Shall it be only said of the thoughts of the heart of England—"Wheresoever the *carcase* is, thither shall the eagles be gathered together?"

LECTURE III.

THE RELATION OF WISE ART TO WISE SCIENCE.

"*The morrow after St. Valentine's*," 1872.

37. Our task to-day is to examine the relation between art and science, each governed by sophia, and becoming capable, therefore, of consistent and definable relation to each other. Between foolish art and foolish science, there may indeed be all manner of reciprocal mischievous influence; but between wise art and wise science there is essential relation, for each other's help and dignity.

You observe, I hope, that I always use the term 'science,' merely as the equivalent of 'knowledge.' I take the Latin

word, rather than the English, to mark that it is knowledge of constant things, not merely of passing events: but you had better lose even that distinction, and receive the word "scientia" as merely the equivalent of our English "knowledge," than fall into the opposite error of supposing that science means systematization or discovery. It is not the arrangement of new systems, nor the discovery of new facts, which constitute a man of science; but the submission to an eternal system; and the proper grasp of facts already known.

38. And, at first, to-day, I use the word "art" only of that in which it is my special office to instruct you; graphic imitation; or, as it is commonly called, Fine art. Of course, the arts of construction,—building, carpentering, and the like, are directly dependent on many sciences, but in a manner which needs no discussion, so that we may put that part of the business out of our way. I mean by art, to-day, only imitative art; and by science, to-day, not the knowledge of general laws, but of existent facts. I do not mean by science, for instance, the knowledge that triangles with equal bases and between parallels, are equal, but the knowledge that the stars in Cassiopeia are in the form of a W.

Now, accepting the terms 'science' and 'art' under these limitations, wise art is only the reflex or shadow of wise science. Whatever it is really desirable and honourable to know, it is also desirable and honourable to know as completely and as long as possible; therefore, to present, or represent, in the most constant manner; and to bring again and again, not only within the thoughts, but before the eyes; describing it, not with vague words, but distinct lines, and true colours, so as to approach always as nearly as may be to the likeness of the thing itself.

39. Can anything be more simple, more evidently or indisputably natural and right, than such connection of the two powers? That you should desire to know what you ought; what is worthy of your nature, and helpful to your life: to know that;—nothing less,—nothing more; and to keep record and definition of such knowledge near you, in the most vivid and explanatory form?

Nothing, surely, can be more simple than this; yet the sum of art judgment and of art practice is in this. You are to recognize, or know, beautiful and noble things—notable, notabilia, or nobilia; and then you are to give the best possible account of them you can, either for the sake of others, or for the sake of your own forgetful or apathetic self, in the future.

Now as I gave you and asked you to remember without failing, an aphorism which embraced the law of wise knowledge, so, to-day, I will ask you to remember, without fail, one, which absolutely defines the relation of wise art to it. I have, already, quoted our to-day's aphorism to you, at the end of my 4th lecture on sculpture. Read the few sentences at the end of that lecture now, down to

"THE BEST, IN THIS KIND, ARE BUT SHADOWS."

That is Shakspeare's judgment of his own art. And by strange coincidence, he has put the words into the mouth of the hero whose shadow or semblance in marble, is admittedly the most ideal and heroic we possess, of man; yet, I need not ask you, whether of the two, if it were granted you to see the statue by Phidias, or the hero Theseus himself, you would choose rather to see the carved stone, or the living King. Do you recollect how Shakspeare's Theseus concludes his sentence, spoken of the poor tradesmen's kindly offered art, in the *Midsummer Night's Dream?*

"The best in this kind are but shadows; and the worst are no worse, if imagination amend them."

It will not burden your memories painfully, I hope, though it may not advance you materially in the class list, if you will learn this entire sentence by heart, being, as it is, a faultless and complete epitome of the laws of mimetic art.

40. "BUT SHADOWS!" Make them as beautiful as you can; use them only to enable you to remember and love what they are cast by. If ever you prefer the skill of them to the simplicity of the truth, or the pleasure of them to the power of the truth, you have fallen into that vice of folly, (whether you

call her κακία or μωρία,) which concludes the subtle description of her given by Prodicus, that she might be seen continually εἰς τὴν ἑαυτῆς σκιὰν ἀποβλέπειν—to look with love, and exclusive wonder, at *her own* shadow.

41. There is nothing that I tell you with more eager desire that you should believe—nothing with wider ground in my experience for requiring you to believe, than this, that you never will love art well, till you love what she mirrors better.

It is the widest, as the clearest experience I have to give you; for the beginning of all my own right art work in life, (and it may not be unprofitable that I should tell you this), depended, not on my love of art, but of mountains and sea. All boys with any good in them are fond of boats, and of course I liked the mountains best when they had lakes at the bottom; and I used to walk always in the middle of the loosest gravel I could find in the roads of the midland counties, that I might hear, as I trod on it, something like the sound of the pebbles on seabeach. No chance occurred for some time to develope what gift of drawing I had; but I would pass entire days in rambling on the Cumberland hill-sides, or staring at the lines of surf on a low sand; and when I was taken annually to the Water-colour Exhibition, I used to get hold of a catalogue before-hand, mark all the Robsons, which I knew would be of purple mountains, and all the Copley Fieldings, which I knew would be of lakes or sea; and then go deliberately round the room to these, for the sake, observe, not of the pictures, in any wise, but only of the things painted.

And through the whole of following life, whatever power of judgment I have obtained, in art, which I am now confident and happy in using, or communicating, has depended on my steady habit of always looking for the subject principally, and for the art, only as the means of expressing it.

42. At first, as in youth one is almost sure to be, I was led too far by my certainty of the rightness of this principle: and provoked into its exclusive assertion by the pertinacity with which other writers denied it: so that, in the first volume of *Modern Painters*, several passages occurred setting the subject or motive of the picture so much above the mode of its ex-

pression, that some of my more feebly gifted disciples supposed they were fulfilling my wishes by choosing exactly the subjects for painting which they were least able to paint. But the principle itself, I maintain, now in advanced life, with more reverence and firmness than in earliest youth: and though I believe that among the teachers who have opposed its assertion, there are few who enjoy the mere artifices of composition or dexterities of handling so much as I, the time which I have given to the investigation of these has only farther assured me that the pictures were noblest which compelled me to forget them.

43. Now, therefore, you see that on this simple theory, you have only to ask what will be the subjects of wise science; these also, will be, so far as they can be imitatively or suggestively represented, the subjects of wise art: and the wisdom of both the science and art will be recognized by their being lofty in their scope, but simple in their language; clear in fancy, but clearer in interpretation; severe in discernment, but delightful in display.

44. For example's sake, since we have just been listening to Shakspeare as a teacher of science and art, we will now examine him as a *subject* of science and art.

Suppose we have the existence and essence of Shakspeare to investigate, and give permanent account of; we shall see that, as the scope and bearing of the science become nobler, art becomes more helpful to it; and at last, in its highest range, even necessary to it; but still only as its minister.

We examine Shakspeare, first, with the science of chemistry, which informs us that Shakspeare consists of about seventy-five parts in the hundred of water, some twelve or fifteen of nitrogen, and the rest, lime, phosphorus, and essential earthy salts.

We next examine him by the science of anatomy, which tells us (with other such matters,) that Shakspeare has seven cervical, twelve dorsal, and five lumbar vertebræ; that his forearm has a wide sphere of rotation; and that he differs from other animals of the ape species by being more delicately prehensile in the fingers, and less perfectly prehensile in the toes.

We next approach Shakspeare with the science of natural history, which tells us the colour of his eyes and hair, his habits of life, his temper, and his predilection for poaching.

There ends, as far as this subject is concerned, our possible science of substantial things. Then we take up our science of ideal things: first of passion, then of imagination; and we are told by these that Shakspeare is capable of certain emotions, and of mastering or commanding them in certain modes. Finally, we take up our science of theology, and ascertain that he is in relation, or in supposed relation, with such and such a Being, greater than himself.

45. Now, in all these successive stages of scientific description, we find art become powerful as an aid or record, in proportion to the importance of the inquiry. For chemistry, she can do scarcely anything: merely keep note of a colour, or of the form of a crystal. For anatomy, she can do somewhat more; and for natural history, almost all things: while in recording passion, and affectionate intellect, she walks hand in hand with the highest science; and to theology, can give nobler aid even than the verbal expression of literature.

46. And in considering this power of hers, remember that the theology of art has only of late been thought deserving of attention: Lord Lindsay, some thirty years ago, was the first to recognize its importance; and when I entered upon the study of the schools of Tuscany in 1845, his "Christian mythology" was the only guide I could trust. Even as late as 1860, I had to vindicate the true position, in Christian science, of Luini, the despised pupil of Leonardo. But only assuming, what with general assent I might assume, that Raphael's dispute of the Sacrament—(or by its less frequently given, but true name—Raphael's Theologia,) is the most perfect effort yet made by art to illustrate divine science, I am prepared hereafter to show you that the most finished efforts of theologic literature, as compared with that piece of pictorial interpretation, have expressed less fully the condition of wise religious thought; and have been warped more dangerously into unwise religious speculation.

47. Upon these higher fields of inquiry we are not yet to

enter. I shall endeavour for some time only to show you the function of modest art, as the handmaid of natural science; and the exponent, first of the beauty of the creatures subject to your own human life; and then of the history of that life in past time; of which one chief source of illustration is to be found in the most brilliant, and in its power on character, hitherto the most practically effective of the arts—Heraldry.

In natural history, I at first intended to begin with the lower types of life; but as the enlarged schools now give me the means of extending the use of our examples, we will at once, for the sake of more general service, take up ornithology, of the uses of which, in general culture, I have one or two grave words to say.

48. Perhaps you thought that in the beginning of my lecture to-day I too summarily dismissed the arts of construction and action. But it was not in disrespect to them; and I must indeed ask you carefully to note one or two points respecting the arts of which an example is set us by birds;—building, and singing.

The other day, as I was calling on the ornithologist whose collection of birds is, I suppose, altogether unrivalled in Europe,—(at once a monument of unwearied love of science, and an example, in its treatment, of the most delicate and patient art)—Mr. Gould—he showed me the nest of a common English bird; a nest which, notwithstanding his knowledge of the dexterous building of birds in all the world, was not without interest even to him, and was altogether amazing and delightful to me. It was a bullfinch's nest, which had been set in the fork of a sapling tree, where it needed an extended foundation. And the bird had built this first story of her nest with withered stalks of clematis blossom; and with nothing else. These twigs it had interwoven lightly, leaving the branched heads all at the outside, producing an intricate Gothic boss of extreme grace and quaintness, apparently arranged both with triumphant pleasure in the art of basket-making, and with definite purpose of obtaining ornamental form.

49. I fear there is no occasion to tell you that the bird had

no purpose of the kind. I say that I *fear* this, because I would much rather have to undeceive you in attributing too much intellect to the lower animals, than too little. But I suppose the only error which, in the present condition of natural history, you are likely to fall into, is that of supposing that a bullfinch is merely a mechanical arrangement of nervous fibre, covered with feathers by a chronic cutaneous eruption; and impelled by a galvanic stimulus to the collection of clematis.

50. You would be in much greater, as well as in a more shameful, error, in supposing this, than if you attributed to the bullfinch the most deliberate rivalship with Mr. Street's prettiest Gothic designs. The bird has exactly the degree of emotion, the extent of science, and the command of art, which are necessary for its happiness; it had felt the clematis twigs to be lighter and tougher than any others within its reach, and probably found the forked branches of them convenient for reticulation. It had naturally placed these outside, because it wanted a smooth surface for the bottom of its nest; and the beauty of the result was much more dependent on the blossoms than the bird.

51. Nevertheless, I am sure that if you had seen the nest,—much more, if you had stood beside the architect at work upon it,—you would have greatly desired to express your admiration to her; and that if Wordsworth, or any other simple and kindly person, could even wish, for a little flower's sake,

> "That to this mountain daisy's self were known,
> The beauty of its star-shaped shadow, thrown
> On the smooth surface of this naked stone,"

much more you would have yearned to inform the bright little nest-builder of your sympathy; and to explain to her, on art principles, what a pretty thing she was making.

52. Does it never occur to you, then, that to some of the best and wisest artists among ourselves, it may not be always possible to explain what pretty things they are making; and that, perhaps, the very perfection of their art is in their knowing so little about it?

Whether it has occurred to you or not, I assure you that it is so. The greatest artists, indeed, will condescend, occasionally, to be scientific ;—will labour, somewhat systematically, about what they are doing, as vulgar persons do ; and are privileged, also, to enjoy what they have made more than birds do ; yet seldom, observe you, as being beautiful, but very much in the sort of feeling which we may fancy the bullfinch had also,—that the thing, whether pretty or ugly, could not have been better done ; that they could not have made it otherwise, and are thankful it is no worse. And, assuredly, they have nothing like the delight in their own work which it gives to other people.

53. But putting the special simplicities of good artists out of question, let me ask you, in the second place, whether it is not possible that the same sort of simplicity might be desirable in the whole race of mankind ; and that we ought all to be doing human work which would appear better done to creatures much above us, than it does to ourselves. Why should not *our* nests be as interesting things to angels, as bullfinches' are to us?

You will, probably, both smile at, and shrink from, such a supposition, as an insolent one. But to my thought, it seems, on the contrary, the only modest one. That *we* should be able to admire the work of angels seems to me the impertinent idea ; not, at all, that they should be able to admire ours.

54. Under existing circumstances, I confess the difficulty. It cannot be imagined that either the back streets of our manufacturing towns, or the designs of our suburban villas, are things which the angels desire to look into : but it seems to me an inevitably logical conclusion that if we are, indeed, the highest of the brute creation, we should, at least, possess as much unconscious art as the lower brutes ; and build nests which shall be, for ourselves, entirely convenient ; and may, perhaps, in the eyes of superior beings, appear more beautiful than to our own.

55. "Which shall be for ourselves, entirely *convenient*." Note the word ;—becoming, decorous, harmonious, satisfying. We may not be able to build anything sublime ; but, at all

events, we should, like other flesh-invested creatures, be able to contrive what was decent, and it should be an human privilege to think that we may be admired in heaven for our contrivance.

I have some difficulty in proceeding with what I want to say, because I know you must partly think I am jesting with you. I feel indeed some disposition to smile, myself; not because I jest, but in the sense of contrast between what, logically, it seems, ought to be; and what we must confess, not jestingly, to be the facts. How great also,—how quaint, the confusion of sentiment in our minds, as to this matter! We continually talk of honouring God with our buildings; and yet, we dare not say, boldly, that, in His sight, we in the least expect to honour ourselves by them! And admitting, though I by no means feel disposed to admit, that here and there we may, at present, be honouring Him by work that is worthy of the nature He gave us, in how many places, think you, are we offending Him by work that is disgraceful to it?

56. Let me return, yet for an instant, to my bird and her nest. If not actually complacent and exultant in her architecture, we may at least imagine that she, and her mate, and the choir they join with, cannot but be complacent and exultant in their song. I gave you, in a former lecture, the skylark as a type of mastership in music; and remembering—some of you, I suppose, are not likely soon to forget,—the saint to whom yesterday was dedicated, let me read to you today some of the prettiest English words in which our natural feeling about such song is expressed.

"And anone, as I the day espide,
No lenger would I in my bed abide,
But unto a wood that was fast by,
I went forth alone boldely,
And held the way downe by a brook side,

Till I came to a laund of white and green,
So faire one had I never in been,
The ground was green, ypoudred with daisie,
The floures and the greves like hie,
All greene and white, was nothing els seene.

There sat I downe among the faire flours,
And saw the birds trip out of hir bours,
There as they rested hem all the night,
They were so joyfull of the dayes light,
They began of May for to done honours.

They coud that service all by rote,
There was many a lovely note,
Some sang loud, as they had plained,
And some in other manner voice yfained,
And some all out with the full throte.

They proyned hem and made hem right gay,
And daunceden and lepten on the spray,
And evermore two and two in fere,
Right so as they had chosen hem to yere
In Feverere, upon saint Valentines day."

You recollect, perhaps, the dispute that follows between the cuckoo and the nightingale, and the promise which the sweet singer makes to Chaucer for rescuing her.

"And then came the Nightingale to me
And said Friend, forsooth I thanke thee
That thou hast liked me to rescue,
And one avow to Love make I now
That all this May, I will thy singer be.

I thanked her, and was right well apaied,
Yea, quoth she, and be not thou dismaied,
Tho' thou have heard the cuckoo erst than me;
For, if I live, it shall amended be,
The next May, if I be not affraied."

"If I be not affraied." Would she not put the "if" more timidly now, in making the same promise to any of you, or in asking for the judgment between her and her enemy, which was to be past, do you remember, on this very day of the year, so many years ago, and within eight miles of this very spot?

"And this shall be without any Nay
On the morrow after St. Valentine's day,
Under a maple that is faire and green
Before the chamber window of the Queen
At Woodstcke, upon the greene lawn.

She thanked them, and then her leave took
And into an hawthorne by that broke.
And there she sate, and sang upon that tree
'*Terme of life love hath withheld me*'
So loud, that I with that song awoke."

57. "Terme of life love hath withheld me!" Alas, how have we men reversed this song of the nightingale! so that our words must be "Terme of life, hatred hath withheld me."

This, then, was the old English science of the song of birds; and perhaps you are indignant with me for bringing any word of it back to you? You have, I doubt not, your new science of song, as of nest-building: and I am happy to think you could all explain to me, or at least you will be able to do so before you pass your natural science examination, how, by the accurate connection of a larynx with a bill, and by the action of heat, originally derived from the sun, upon the muscular fibre, an undulatory motion is produced in the larynx, and an opening and shutting one in the bill, which is accompanied, necessarily, by a piping sound.

58. I will not dispute your statement; still less do I wish to answer for the absolute truth of Chaucer's. You will find that the complete truth embraces great part of both; and that you may study, at your choice, in any singing bird, the action of universal heat on a marvellous mechanism, or of individual life, on a frame capable of exquisite passion. But the point I wish you to consider is the relation, to this lower creature's power, of your own human agencies in the production of sound, where you can best unite in its harmony.

59. I had occasion only the other day to wait for half an hour at the bottom of Ludgate Hill. Standing as much out of the way as I could, under the shadow of the railroad bridge, I watched the faces, all eager, many anxious, and some intensely gloomy, of the hurried passers by; and listened to the ceaseless crashing, whistling, and thundering sounds which mingled with the murmur of their steps and voices. And in the midst of the continuous roar, which differed only from that of the wildest sea in storm by its complexity and its discordance, I was wondering, if the sum of what all these peo-

ple were doing, or trying to do, in the course of the day, could be made manifest, what it would come to.

60. The sum of it would be, I suppose, that they had all contrived to live through the day in that exceedingly unpleasant manner, and that nothing serious had occurred to prevent them from passing the following day likewise. Nay, I knew also that what appeared in their way of life painful to me, might be agreeable to them; and it chanced, indeed, a little while afterwards, that an active and prosperous man of business, speaking to one of my friends of the disappointment he had felt in a visit to Italy, remarked, especially, that he was not able to endure more than three days at Venice, because there was no noise there.

61. But, granting the contentment of the inhabitants of London in consistently producing these sounds, how shall we say this vocal and instrumental art of theirs may compare, in the scheme of Nature, with the vocal art of lower animals? We may indeed rank the danger-whistle of the engines on the bridge as an excruciating human improvement on that of the marmot; and the trampling of feet and grinding of wheels, as the human accentuation of the sounds produced by insects, by the friction of their wings or thighs against their sides: but, even in this comparison, it may cause us some humiliation to note that the cicada and the cricket, when pleased to sing in their vibratory manner, have leisure to rest in their delight; and that the flight of the firefly is silent. But how will the sounds we produce compare with the song of birds? This London is the principal nest of men in the world; and I was standing in the centre of it. In the shops of Fleet Street and Ludgate Hill, on each side of me, I do not doubt I could have bought any quantity of books for children, which by way of giving them religious, as opposed to secular, instruction, informed them that birds praised God in their songs. Now, though on the one hand, you may be very certain that birds are not machines, on the other hand it is just as certain that they have not the smallest intention of praising God in their songs; and that we cannot prevent the religious education of our children more utterly than by begin-

ning it in lies. But it might be expected of *ourselves* that we should do so, in the songs we send up from our principal nest! And although, under the dome at the top of Ludgate Hill, some attempt of the kind may be made every seventh day, by a limited number of persons, we may again reflect, with humiliation, that the birds, for better or worse, sing all, and every day; and I could not but ask myself, with momentarily increasing curiosity, as I endeavoured to trace the emotions and occupations of the persons who passed by me, in the expression of their faces—what would be the effect on them, if any creatures of higher order were suddenly to appear in the midst of them with any such message of peace, and invitation to rejoicing, as they had all been professing to commemorate at Christmas.

62. Perhaps you recollect, in the lectures given on landscape during the spring of this year, my directing your attention to a picture of Mantegna's, in the loan exhibition, representing a flight of twelve angels in blue sky, singing that Christmas song. I ought to tell you, however, that one of our English artists of good position dissented from my opinion about the picture; and remarked that in England "we wanted good art, and not funny art." Whereas, to me, it is this vocal and architectural art of Ludgate Hill which appears funny art; and not Mantegna's. But I am compelled to admit that could Mantegna's picture have been realized, the result would, in the eyes of most men, have been funnier still. For suppose that over Ludgate Hill the sky had indeed suddenly become blue instead of black; and that a flight of twelve angels, "covered with silver wings, and their feathers with gold," had alighted on the cornice of the railroad bridge, as the doves alight on the cornices of St. Mark's at Venice; and had invited the eager men of business below, in the centre of a city confessedly the most prosperous in the world, to join them for five minutes in singing the first five verses of such a psalm as the 103rd—"Bless the Lord, oh my soul, and *all that is within me*," (the opportunity now being given for the expression of their most hidden feelings) "all that is within me, bless His holy name, and forget not all his benefits." Do

you not even thus, in mere suggestion, feel shocked at the thought, and as if my now reading the words were profane? And cannot you fancy that the sensation of the crowd at so violent and strange an interruption of traffic, might be somewhat akin to that which I had occasion in my first lecture on sculpture to remind you of,—the feeling attributed by Goethe to Mephistopheles at the song of the angels: "Discord I hear, and intolerable jingling?"

63. Nay, farther, if indeed none of the benefits bestowed on, or accomplished by, the great city, were to be forgotten, and if search were made, throughout its confines, into the results of its wealth, might not the literal discord in the words themselves be greater than the felt discord in the sound of them?

I have here in my hand a cutting from a newspaper, which I took with me three years ago, to a meeting in the interest of social science, held in the rooms of the Society of Arts, and under the presidency of the Prime Minister of England. Under the (so-called) 'classical' paintings of Barry, representing the philosophy and poetry of the ancients, Mr. Gladstone was in the chair: and in his presence a member of the society for the promotion of Social Science propounded and supported the statement, not irrelevant to our present inquiry, that the essential nature of man was that of a beast of prey. Though, at the time, (suddenly called upon by the author of *Tom Brown at Oxford*), I feebly endeavoured to contradict that Socially Scientific person, I do not at present desire to do so. I have given you a creature of prey for comparison of knowledge. "Doth the eagle know what is in the pit?" and in this great nest of ours in London, it would be well if to all our children the virtue of the creature of prey were fulfilled, and that, indeed, the stir and tumult of the city were "as the eagle stirreth up her nest, and fluttereth over her young." But the slip of paper I had then, and have now, in my hand,* contains information about the state of the nest, inconsistent with such similitude. I am not answerable for the juxtaposi-

* *Pall Mall Gazette*, January 29th, 1869.

tion of paragraphs in it. The first is a proposal for the building of a new church in Oxford, at the cost of twenty thousand pounds; the second is the account of the inquest on a woman and her child who were starved to death in the Isle of Dogs. The bodies were found lying, without covering, on a bed made of heaped rags; and there was no furniture in the room but a wooden stool, on which lay a tract entitled "*The Goodness of God.*" The husband, who had been out of work for six months, went mad two days afterwards; and being refused entrance at the workhouse because it was "full of mad people," was carried off, the *Pall Mall Gazette* says not where.

64. Now, gentlemen, the question I wish to leave with you to-day is whether the Wisdom, which rejoices in the habitable parts of the earth, and whose delights are with the sons of men, can be supposed, under circumstances such as these, to delight herself in that most closely and increasingly inhabited portion of the globe which we ourselves now dwell on; and whether, if she cannot grant us to surpass the art of the swallow or the eagle, she may not require of us at least, to reach the level of their happiness. Or do you seriously think that, either in the life of Ludgate Hill, or death of the Isle of Dogs; in the art of Ludgate Hill, or idleness of the Isle of Dogs; and in the science and sanity of Ludgate Hill, or nescience and insanity of the Isle of Dogs, we have, as matters stand now, any clear encouragement to repeat, in that 103rd psalm, the three verses following the five I named; and to believe in our hearts, as we say with our lips, that we have yet, dwelling among us, unoffended, a God "who forgiveth all our iniquities, who healeth all our diseases; who redeemeth our life from destruction, who crowneth us with loving kindness and tender mercies, and *who satisfieth our mouth with good things, so that our youth is* RENEWED LIKE THE EAGLE'S?"

LECTURE IV.

THE POWER OF MODESTY IN SCIENCE AND ART.

17th February, 1872.

65. I BELIEVE, gentlemen, that some of you must have been surprised,—and, if I succeeded in making my last lecture clearly intelligible, many ought to have been surprised,—at the limitations I asked you to admit with respect to the idea of science, and the position which I asked you to assign to it. We are so much, by the chances of our time, accustomed to think of science as a process of discovery, that I am sure some of you must have been gravely disconcerted by my requesting, and will to-day be more disconcerted by my firmly recommending, you to use the word, and reserve the thought, of science, for the acquaintance with things long since discovered, and established as true. We have the misfortune to live in an epoch of transition from irrational dulness to irrational excitement; and while once it was the highest courage of science to question anything, it is now an agony to her to leave anything unquestioned. So that, unawares, we come to measure the dignity of a scientific person by the newness of his assertions, and the dexterity of his methods in debate; entirely forgetting that science cannot become perfect, as an occupation of intellect, while anything remains to be discovered; nor wholesome as an instrument of education, while anything is permitted to be debated.

66. It appears, doubtless, a vain idea to you that an end should ever be put to discovery; but remember, such impossibility merely signifies that mortal science must remain imperfect. Nevertheless, in many directions, the limit to practically useful discovery is rapidly being approached; and you, as students, would do well to suppose that it has been already attained. To take the science of ornithology, for instance: I suppose you would have very little hope of shooting a bird in England, which should be strange to any master of the

science, or of shooting one anywhere, which would not fall under some species already described. And although at the risk of life, and by the devotion of many years to observation, some of you might hope to bring home to our museum a titmouse with a spot on its tail which had never before been seen, I strongly advise you not to allow your studies to be disturbed by so dazzling a hope, nor your life exclusively devoted even to so important an object. In astronomy, the fields of the sky have not yet, indeed, been ransacked by the most costly instruments; and it may be in store for some of you to announce the existence, or even to analyze the materials, of some luminous point which may be seen two or three times in the course of a century, by any one who will journey to India for the purpose; and, when there, is favoured by the weather. But, for all practical purposes, the stars already named and numbered are as many as we require to hear of; and if you thoroughly know the visible motions, and clearly conceive the known relations, even of those which can be seen by the naked eye, you will have as much astronomy as is necessary, either for the occupation of thought, or the direction of navigation.

67. But, if you were discontented with the limit I proposed for your sciences, much more, I imagine, you were doubtful of the ranks I assigned to them. It is not, I know, in your modern system, the general practice to put chemistry, the science of atoms, lowest, and theology, the science of Deity, highest: nay, many of us have ceased to think of theology as a science at all, but rather as a speculative pursuit, in subject, separate from science; and in temper, opposed to her.

Yet it can scarcely be necessary for me to point out to you, in so many terms, that what we call theology, if true, is a science; and if false, is not theology; or that the distinction even between natural science and theology is illogical; for you might distinguish indeed between natural and unnatural science, but not between natural and spiritual, unless you had determined first that a spirit had no nature. You will find the facts to be, that entirely true knowledge is both possible and necessary—first of facts relating to matter, and then

of the forces and passions that act on or in matter;—that, of all these forces, the noblest we can know is the energy which either imagines, or perceives, the existence of a living power greater than its own; and that the study of the relations which exist between this energy, and the resultant action of men, are as much subjects of pure science as the curve of a projectile. The effect, for instance, upon your temper, intellect, and conduct during the day, of your going to chapel with or without belief in the efficacy of prayer, is just as much a subject of definite science, as the effect of your breakfast on the coats of your stomach. Which is the higher knowledge, I have, with confidence, told you; and am not afraid of any test to which you may submit my assertion.

68. Assuming such limitation, then, and such rank, for our knowledge; assuming, also, what I have now, perhaps to your weariness, told you, that graphic art is the shadow, or image, of knowledge,—I wish to point out to you to-day the function, with respect to both, of the virtue called by the Greeks '*σωφροσύνη*,' 'safeness of mind,' corresponding to the 'salus' or 'sanitas' mentis, of the Latins; 'health of heart' is, perhaps, the best English; if we receive the words 'mens,' '*μῆνις*,' or '*φρήν*,' as expressing the passionate soul of the human being, distinguished from the intellectual; the 'mens sana' being possible to all of us, though the contemplative range of the higher wisdom may be above our capacities; so that to each of us Heaven only permits the ambition of being *σοφός*, but commands the resolution to be *σώφρων*.

69. And, without discussing the use of the word by different writers, I will tell you that the clearest and safest idea of the mental state itself is to be gained from the representations of it by the words of ancient Christian religion, and even from what you may think its superstitions. Without any discussion also as to the personal existence or traditional character of evil spirits, you will find it a practical fact, that external temptations and inevitable trials of temper, have power against you which your health and virtue depend on your resisting; that, if not resisted, the evil energy of them

will pass into your own heart, φρήν, or μῆνις; and that the ordinary and vulgarized phrase "the Devil, or betraying Spirit, is *in him*" is the most scientifically accurate which you can apply to any person so influenced. You will find also that, in the compass of literature, the casting out of, or cleansing from, such a state is best symbolized for you by the image of one who had been wandering wild and naked *among tombs*, sitting still, clothed, and in his right mind, and that in whatever literal or figurative sense you receive the Biblical statement of what followed, this is absolutely certain, that the herd of swine hastening to their destruction, in perfect sympathy with each other's fury, is the most accurate symbol ever given, in literature, of consummate human ἀφροσύνη.

* * * *

(The conditions of insanity,* delighting in scenes of death, which affect at the present time the arts of revolutionary Europe, were illustrated in the sequel of this lecture: but I neither choose to take any permanent notice of the examples I referred to, nor to publish any part of what I said, until I can enter more perfectly into the analysis of the elements of evil passion which always distorted and polluted even the highest arts of Greek and Christian loyal religion; and now occupy in deadly entireness, the chambers of imagination, devastated, and left desolate of joy, by impiety, and disobedience.

In relation to the gloom of gray colour characteristic especially of the modern French Revolutionary school, I entered into some examination of the conditions of real temperance and reserve in colour, showing that it consisted not in refusing colour, but in governing it; and that the most pure and bright colours might be thus perfectly governed, while the most dull were probably also the most violent and intemperate. But it would be useless to print this part of the lecture without the colour-illustrations used.

Passing to the consideration of intemperance and immodesty in the choice even of landscape subjects, I referred thus, for contrast, to the quietude of Turner's "Greta and Tees.")

* I use this word always meaning it to be understood literally and in its full force.

70. If you wish to feel the reserve of this drawing, look, first, into the shops at their display of common chromo-litho-tints; see how they are made up of Matterhorns, Monte Rosas, blue glaciers, green lakes, white towers, magnificent banditti, romantic peasantry, or always-successful sportsmen or fishermen in Highland costume; and then see what Turner is content with. No Matterhorns are needful, or even particularly pleasing to him. A bank, some eight or ten feet high, of Yorkshire shale is enough. He would not thank you for giving him all the giant forests of California;—would not be so much interested in them, nor half so happy among them, as he is here with a switch of oak sapling, which the Greta has pulled down among the stones, and teased awhile, and which, now that the water is lower, tries to get up again, out of its way.

He does not want any towers or towns. Here you are to be contented with three square windows of a country gentleman's house. He does not want resplendent banditti. Behold! here is a brown cow and a white one: what would you have more? And this scarcely-falling rapid of the Tees—here pausing to circle round a pool, and there laughing as it trips over a ledge of rock, six or seven inches high, is more to him—infinitely more—than would be the whole colossal drainage of Lake Erie into Lake Ontario, which Carlyle has justly taken for a type of the Niagara of our national precipitous ἀφροσύνη.

71. I need not point out to you the true temperance of colour in this drawing—how slightly green the trees are, how softly blue the sky.

Now I put a chromo-lithotint beside it.

Well, why is that good, this bad? Simply because if you think, and work, and discipline yourselves nobly, you will come to like the Greta and Tees; if not, you will come to like *this*. The one is what a strong man likes; the other what a weak one likes: that is modest, full of true αἰδὼς, noble restraint, noble reverence;—this has no αἰδὼς, no fear, no measure:—not even purpose, except, by accumulation of whatever it can see or snatch, to move the vile apathy of the public ἀφροσύνη into sensation.

72. The apathy of *ἀφροσύνη*—note the expression! You might think that it was *σωφροσύνη*, which was apathetic, and that intemperance was full of passion. No; the exact contrary is the fact. It is death in ourselves which seeks the exaggerated external stimulus. I must return for a moment to the art of modern France.

The most complete rest and refreshment I can get, when I am overworked, in London (for if I try to rest in the fields, I find them turned into villas in the course of the week before), is in seeing a French play. But the French act so perfectly that I am obliged to make sure beforehand that all is to end well, or it is as bad as being helplessly present at some real misery.

I was beguiled the other day, by seeing it announced as a "Comédie," into going to see "*Frou-Frou.*" Most of you probably know that the three first of its five acts *are* comedy, or at least playful drama, and that it plunges down, in the two last, to the sorrowfullest catastrophe of all conceivable—though too frequent in daily life—in which irretrievable grief is brought about by the passion of a moment, and the ruin of all that she loves, caused by the heroic error of an entirely good and unselfish person. The sight of it made me thoroughly ill, and I was not myself again for a week.

But, some time afterwards, I was speaking of it to a lady who knew French character well; and asked her how it was possible for a people so quick in feeling to endure the action before them of a sorrow so poignant. She said, "It is because they have not sympathy enough: they are interested only by the external scene, and are, in truth, at present, dull, not quick in feeling. My own French maid went the other evening to see that very play: when she came home, and I asked her what she thought of it, she said 'it was charming, and she had amused herself immensely.' 'Amused! but is not the story very sad?' 'Oh, yes, mademoiselle, it is bien triste, but it is charming; and then, how pretty *Frou-Frou* looks in her silk dress!'"

73. Gentlemen, the French maid's mode of regarding the tragedy is, if you think of it, a most true image of the way in

which fashionable society regards the world-suffering, in the midst of which, so long as it can amuse itself, all seems to it well. If the ball-room is bright, and the dresses pretty, what matter how much horror is beneath or around? Nay, this apathy checks us in our highest spheres of thought, and chills our most solemn purposes. You know that I never join in the common outcries against Ritualism; yet it is too painfully manifest to me that the English Church itself has withdrawn her eyes from the tragedy of all churches, to perk herself up anew with casement and vestment, and say of herself, complacently, in her sacred ποικιλία, "How pretty Frou-Frou is, in her silk dress!"

74. We recognize, however, without difficulty, the peril of insatiableness and immodesty in the pleasures of Art. Less recognized, but therefore more perilous, the insatiableness and immodesty of Science tempt us through our very virtues.

The fatallest furies of scientific ἀφροσύνη are consistent with the most noble powers of self-restraint and self-sacrifice. It is not the lower passions, but the loftier hopes and most honourable desires which become deadliest when the charm of them is exalted by the vanity of science. The patience of the wisest of Greek heroes never fails, when the trial is by danger or pain; but do you recollect that before his trial by the song of the Sirens, the sea becomes calm? And in the few words which Homer has told you of their song, you have not perhaps yet with enough care observed that the form of temptation is precisely that to which a man victorious over every fleshly trial would be likely to yield. The promise is not that his body shall be gratified, but that his soul shall rise into rapture; he is not urged, as by the subtlety of Comus, to disdain the precepts of wisdom, but invited, on the contrary, to learn,—as you are all now invited by the ἀφροσύνη of your age,—better wisdom from the wise.

"For we know all" (they say) "that was done in Troy according to the will of the gods, and we know everything that is upon the all-nourishing earth."

All heavenly and earthly knowledge, you see. I will read

you Pope's expansion of the verses; for Pope never alters idly, but always illustrates when he expands.

"Oh stay, oh pride of Greece!

(You hear, they begin by flattery).

Ulysses, stay,
Oh cease thy course, and listen to our lay,
Blest is the man ordained our voice to hear,
The song instructs the soul, and charms the ear,
Approach! Thy soul shall into raptures rise;
Approach! and learn new wisdom from the wise.
We know whate'er the kings of mighty name
Achieved at Ilion in the field of Fame,
Whate'er beneath the Sun's bright journey lies,
Oh, stay, and learn new wisdom from the wise."

Is it not singular that so long ago the danger of this novelty of wisdom should have been completely discerned? Is it not stranger still that three thousand years have passed by, and we have not yet been able to learn the lesson, but are still eager to add to our knowledge, rather than to use it; and every day more passionate in discovering,—more violent in competition,—are every day more cold in admiration, and more dull in reverence.

75. But, gentlemen, Homer's *Ulysses*, bound to the mast, survives. Dante's *Ulysses* is bound to the mast in another fashion. He, notwithstanding the protection of Athena, and after all his victories over fate, is still restless under the temptation to seek new wisdom. He goes forth past the pillars of Hercules, cheers his crew amidst the uncompassed solitudes of the Atlantic, and perishes in sudden Charybdis of the infinite sea. In hell, the restless flame in which he is wrapt continually, among the advisers of evil, is seen, from the rocks above, like the firefly's flitting to and fro; and the waving garment of torture, which quivers as he speaks, and aspires as he moves, condemns him to be led in eternal temptation, and to be delivered from evil never more.

LECTURE V.

THE POWER OF CONTENTMENT IN SCIENCE AND ART.

22nd February, 1872.

76. I MUST ask you, in order to make these lectures of any permanent use, to be careful in keeping note of the main conclusion at which we arrive in the course of each, and of the sequence of such results. In the first, I tried to show you that Art was only wise, when unselfish in her labour; in the second, that Science was only wise when unselfish in her statement; in the third, that wise Art was the shadow, or visible reflection, of wise Science; and in the fourth, that all these conditions of good must be pursued temperately and peacefully. I have now farther to tell you that they must be pursued independently.

77. You have not often heard me use that word "independence." And, in the sense in which of late it has been accepted, you have never heard me use it but with contempt. For the true strength of every human soul is to be dependent on as many nobler as it can discern, and to be depended upon, by as many inferior as it can reach.

But to-day I used the word in a widely different sense. I think you must have felt, in what amplification I was able to give you of the idea of Wisdom as an unselfish influence in Art and Science, how the highest skill and knowledge were founded in human tenderness, and that the kindly Art-wisdom which rejoices in the habitable parts of the earth, is only another form of the lofty Scientific charity, which 'rejoices in the truth.' And as the first order of Wisdom is to know thyself—though the least creature that can be known—so the first order of Charity is to be sufficient for thyself, though the least creature that can be sufficed; and thus contented and appeased, to be girded and strong for the ministry to others. If sufficient to thy day is the evil thereof, how much more should be the good!

78. I have asked you to recollect one aphorism respecting Science, one respecting Art; let me—and I will ask no more at this time of asking—press you to learn, farther, by heart, those lines of the Song of the Sirens: six lines of Homer, I trust, will not be a weariness to you:—

> οὐ γάρ πώ τις τῇδε παρήλασε νηῒ μελαίνῃ,
> πρίν γ' ἡμέων μελίγηρυν ἀπὸ στοιάτων ὀπ' ἀκοῦσαι·
> ἀλλ' ὅγε τερψάμενος νεῖται, καὶ πλείονα εἰδώς.
> ἴδμεν γάρ τοι πάνθ', ὅσ ἐνὶ Τροίῃ εὐρείῃ
> Ἀργεῖοι Τρῶές τε θεῶν ἰότητι μόγησαν·
> ἴδμεν δ', ὅσσα γένηται ἐπὶ χθονὶ πουλυβοτείρῃ.

"No one ever rowed past this way in his black ship, before he had listened to the honey-sweet singing of our lips. But he stays pleased, though he may know much. For we know all things which the Greeks and Trojans did in the wide Trojan plain, by the will of the gods, and we know what things take place in the much nourishing earth." And this, remember, is absolutely true. No man ever went past in the black ship; obeying the grave and sad law of life by which it is appointed for mortals to be victors on the ocean, but he was tempted, as he drew near that deadly island, wise as he might be, (καὶ πλείονα εἰδώς),—by the voices of those who told him that they knew everything which had been done by the will of God, and everything which took place on earth for the service of man.

79. Now observe those two great temptations. You are to know everything that has been done by the will of God: and to know everything that is *vital* in the earth. And try to realize to yourselves, for a little while, the way in which these two siren promises have hitherto troubled the paths of men. Think of the books that have been written in false explanation of Divine Providence: think of the efforts that have been made to show that the particular conduct which we approve in others, or wish ourselves to follow, is according to the will of God. Think what ghastly convulsions in thought, and vilenesses in action, have been fallen into by the sects which thought they had adopted, for their patronage, the

perfect purposes of Heaven. Think of the vain research, the wasted centuries of those who have tried to penetrate the secrets of life, or of its support. The elixir vitæ, the philosopher's stone, the germ-cells in meteoric iron, '*ἐπὶ χθονὶ πουλυβοτείρῃ*.' But at this day, when we have loosed the last band from the masts of the black ship, and when, instead of plying every oar to escape, as the crew of Homer's Ulysses, we row like the crew of Dante's Ulysses, and of our oars make wings for our foolish flight,

> E, volta nostra poppe nel mattino
> De' remi facemmo ale al folle volo—

the song of the sirens becomes fatal as never yet it has been in time. We think ourselves privileged, first among men, to know the secrets of Heaven, and fulfil the economy of earth; and the result is, that of all the races that yet have been put to shame by their false wisdom or false art,—which have given their labour for that which is not bread, and their strength for that which satisfieth not,—we have most madly abandoned the charity which is for itself sufficing, and for others serviceable, and have become of all creatures the most insufficient to ourselves, and the most malignant to our neighbours. Granted a given degree of knowledge—granted the '*καὶ πλείονα εἰδώς*' in science, in art, and in literature,—and the present relations of feeling between France and Germany, between England and America, are the most horrible at once in their stupidity and malignity, that have ever taken place on the globe we inhabit, even though all of its great histories are of sin, and all its great songs, of death.

80. Gentlemen, I pray you very solemnly to put that idea of knowing all things in Heaven and Earth out of your hearts and heads. It is very little that we can ever know, either of the ways of Providence, or the laws of existence. But that little is enough, and exactly enough: to strive for more than that little is evil for us; and be assured that beyond the need of our narrow being,—beyond the range of the kingdom over which it is ordained for each of us to rule in serene *αὐτάρκεια*

and self-possession, he that increaseth toil, increaseth folly; and he that increaseth knowledge, increaseth sorrow.

81. My endeavour, therefore, to-day will be to point out to you how in the best wisdom, that there may be happy advance, there must first be happy contentment; that, in one sense, we must always be entering its kingdom as a little child, and pleased yet for a time *not* to put away childish things. And while I hitherto have endeavoured only to show how modesty and gentleness of disposition purified Art and Science, by permitting us to recognize the superiority of the work of others to our own—to-day, on the contrary, I wish to indicate for you the uses of infantile self-satisfaction; and to show you that it is by no error or excess in our nature, by no corruption or distortion of our being, that we are disposed to take delight in the little things that we can do ourselves, more than in the great things done by other people. So only that we recognize the littleness and the greatness, it is as much a part of true Temperance to be pleased with the little that we know, and the little that we can do, as with the little that we have. On the one side Indolence, on the other Covetousness, are as much to be blamed, with respect to our Arts, as our possessions; and every man is intended to find an exquisite personal happiness in his own small skill, just as he is intended to find happiness in his own small house or garden, while he respects, without coveting, the grandeur of larger domains.

82. Nay, more than this: by the wisdom of Nature, it has been appointed that more pleasure may be taken in small things than in great, and more in rude Art than in the finest. Were it otherwise, we might be disposed to complain of the narrow limits which have been set to the perfection of human skill.

I pointed out to you, in a former lecture, that the excellence of sculpture had been confined in past time to the Athenian and Etrurian vales. The absolute excellence of painting has been reached only by the inhabitants of a single city in the whole world; and the faultless manner of religious architecture holds only for a period of fifty years out of six thousand. We are at present tormenting ourselves with the vain

effort to teach men everywhere to rival Venice and Athens,—with the practical result of having lost the enjoyment of Art altogether ;—instead of being content to amuse ourselves still with the painting and carving which were possible once, and would be pleasant always, in Paris, and London, at Strasbourg, and at York.

I do not doubt that you are greatly startled at my saying that greater pleasure is to be received from inferior Art than from the finest. But what do you suppose makes all men look back to the time of childhood with so much regret, (if their childhood has been, in any moderate degree, healthy or peaceful)? That rich charm, which the least possession had for us, was in consequence of the poorness of our treasures. That miraculous aspect of the nature around us, was because we had seen little, and knew less. Every increased possession loads us with a new weariness ; every piece of new knowledge diminishes the faculty of admiration ; and Death is at last appointed to take us from a scene in which, if we were to stay longer, no gift could satisfy us, and no miracle surprise.

83. Little as I myself know, or can do, as compared with any man of essential power, my life has chanced to be one of gradual progress in the things which I began in childish choice ; so that I can measure with almost mathematical exactitude the degree of feeling with which less and greater degrees of wealth or skill affect my mind.

I well remember the delight with which, when I was beginning mineralogy, I received from a friend, who had made a voyage to Peru, a little bit of limestone about the size of a hazel nut, with a small film of native silver adhering to its surface. I was never weary of contemplating my treasure, and could not have felt myself richer had I been master of the mines of Copiapo.

I am now about to use as models for your rock drawing stones which my year's income, when I was a boy, would not have bought. But I have long ceased to take any pleasure in their possession ; and am only thinking, now, to whom else they can be of use, since they can be of no more to me.

84. But the loss of pleasure to me caused by advance in

knowledge of drawing has been far greater than that induced by my riches in minerals.

I have placed, in your reference series, one or two drawings of architecture, made when I was a youth of twenty, with perfect ease to myself, and some pleasure to other people. A day spent in sketching them brought with it no weariness, and infinite complacency. I know better now what drawing should be ; the effort to do my work rightly fatigues me in an hour, and I never care to look at it again from that day forward.

85. It is true that men of great and real power do the best things with comparative ease ; but you will never hear them express the complacency which simple persons feel in partial success. There is nothing to be regretted in this ; it is appointed for all men to enjoy, but for few to achieve.

And do not think that I am wasting your time in dwelling on these simple moralities. From the facts I have been stating we must derive this great principle for all effort. That we must endeavour to *do*, not what is absolutely best, but what is easily within our power, and adapted to our temper and condition.

86. In your educational series is a lithographic drawing, by Prout, of an old house in Strasbourg. The carvings of its woodwork are in a style altogether provincial, yet of which the origin is very distant. The delicate Renaissance architecture of Italy was affected, even in its finest periods, by a tendency to throw out convex masses at the bases of its pillars ; the wood-carvers of the 16th century adopted this bulged form as their first element of ornamentation, and these windows of Strasbourg are only imitations by the German peasantry of what, in its finest type, you must seek as far away as the Duomo of Bergamo.

But the burgher, or peasant, of Alsace enjoyed his rude imitation, adapted, as it was, boldly and frankly to the size of his house and the grain of the larch logs of which he built it, infinitely more than the refined Italian enjoyed the floral luxuriance of his marble : and all the treasures of a great exhibition could not have given him the tenth part of the exul-

tation with which he saw the gable of his roof completed over its jutting fret-work ; and wrote among the rude intricacies of its sculpture, in flourished black letter, that "He and his wife had built their house with God's help, and prayed Him to let them live long in it,—they, and their children."

87. But it is not only the rustic method of architecture which I wish you to note in this plate ; it is the rustic method of drawing also. The manner in which these blunt timber carvings are drawn by Prout is just as provincial as the carvings themselves. Born in a far-away district of England, and learning to draw, unhelped, with fishing-boats for his models ; making his way instinctively until he had command of his pencil enough to secure a small income by lithographic drawing ; and finding picturesque character in buildings from which all the finest lines of their carving had been effaced by time ;—possessing also an instinct in the expression of such subjects so peculiar as to win for him a satisfying popularity, and, far better, to enable him to derive perpetual pleasure in the seclusion of country hamlets, and the quiet streets of deserted cities,—Prout had never any motive to acquaint himself with the refinements, or contend with the difficulties, of a more accomplished art. So far from this, his manner of work was, by its very imperfection, in the most perfect sympathy with the subjects he enjoyed. The broad chalk touches in which he has represented to us this house at Strasbourg are entirely sufficient to give true idea of its effect. To have drawn its ornaments with the subtlety of Leonardesque delineation would only have exposed their faults, and mocked their rusticity. The drawing would have become painful to you from the sense of the time which it had taken to represent what was not worth the labour, and to direct your attention to what could only, if closely examined, be matter of offence. But here you have a simple and provincial draughtsman happily and adequately expressing a simple and provincial architecture ; nor could either builder or painter have become wiser, but to their loss.

88. Is it then, you will ask me, seriously to be recommended, and, however recommendable, is it possible, that

men should remain contented with attainments which they know to be imperfect? and that now, as in former times, large districts of country, and generations of men, should be enriched or amused by the products of a clumsy ignorance? I do not know how far it is possible, but I know that wherever you desire to have true art, it is necessary. Ignorance, which is contented and clumsy, will produce what is imperfect, but not offensive. But ignorance *dis*-contented, and dexterous, learning what it cannot understand, and imitating what it cannot enjoy, produces the most loathsome forms of manufacture that can disgrace or mislead humanity. Some years since, as I was looking through the modern gallery at the quiet provincial German School of Düsseldorf, I was fain to leave all their epic and religious designs, that I might stay long before a little painting of a shepherd boy carving his dog out of a bit of deal. The dog was sitting by, with the satisfied and dignified air of a personage about for the first time in his life to be worthily represented in sculpture; and his master was evidently succeeding to his mind in expressing the features of his friend. The little scene was one which, as you know, must take place continually among the cottage artists who supply the toys of Nuremberg and Berne. Happy, these! so long as, undisturbed by ambition, they spend their leisure time in work pretending only to amuse, yet capable, in its own way, of showing accomplished dexterity, and vivid perception of nature. We, in the hope of doing great things, have surrounded our workmen with Italian models, and tempted them with prizes into competitive mimicry of all that is best, or that we imagine to be best, in the work of every people under the sun. And the result of our instruction is only that we are able to produce,—I am now quoting the statement I made last May, "the most perfectly and roundly ill-done things" that ever came from human hands. I should thankfully put upon my chimney-piece the wooden dog cut by the shepherd boy: but I should be willing to forfeit a large sum, rather than keep in my room the number 1 of the Kensington Museum—thus described in its catalogue—"Statue in black and white marble, of a Newfoundland dog standing

on a serpent, which rests on a marble cushion ;—the pedestal ornamented with Pietra Dura fruits in relief."

89. You will, however, I fear, imagine me indulging in my usual paradox, when I assure you that all the efforts we have been making to surround ourselves with heterogeneous means of instruction, will have the exactly reverse effect from that which we intend ;—and that, whereas formerly we were able only to do a little well, we are qualifying ourselves now to do everything ill. Nor is the result confined to our workmen only. The introduction of French dexterity and of German erudition has been harmful chiefly to our most accomplished artists—and in the last Exhibition of our Royal Academy there was, I think, no exception to the manifest fact that every painter of reputation painted worse than he did ten years ago.

90. Admitting, however, (not that I suppose you will at once admit, but for the sake of argument, supposing,) that this is true? what, we have farther to ask, can be done to discourage ourselves from calamitous emulation, and withdraw our workmen from the sight of what is too good to be of use to them?

But this question is not one which can be determined by the needs, or limited to the circumstances of Art. To live generally more modest and contented lives ; to win the greatest possible pleasure from the smallest things ; to do what is likely to be serviceable to our immediate neighbours, whether it seem to them admirable or not ; to make no pretence of admiring what has really no hold upon our hearts ; and to be resolute in refusing all additions to our learning, until we have perfectly arranged and secured what learning we have got ;—these are conditions, and laws, of unquestionable *σοφία* and *σωφροσύνη*, which will indeed lead us up to fine art if we are resolved to have it fine ; but will also do what is much better, make rude art precious.

91. It is not, however, by any means necessary that provincial art *should* be rude, though it may be singular. Often it is no less delicate than quaint, and no less refined in grace than original in character. This is likely always to take place

when a people of naturally fine artistic temper work with the respect which, as I endeavoured to show you in a former lecture, ought always to be paid to local material and circumstance.

I have placed in your educational series the photograph of the door of a wooden house in Abbeville, and of the winding stair above; both so exquisitely sculptured that the real vine-leaves which had wreathed themselves about their pillars, cannot, in the photograph, be at once discerned from the carved foliage. The latter, quite as graceful, can only be known for art by its quaint setting.

Yet this school of sculpture is altogether provincial. It could only have risen in a richly-wooded chalk country, where the sapling trees beside the brooks gave example to the workmen of the most intricate tracery, and the white cliffs above the meadows furnished docile material to his hand.

92. I have now, to my sorrow, learned to despise the elaborate intricacy, and the playful realizations, of the Norman designers; and can only be satisfied by the reserved and proud imagination of the master schools. But the utmost pleasure I now take in these is almost as nothing, compared to the joy I used to have, when I knew no better, in the fretted pinnacles of Rouen, and white lace, rather than stone-work, of the chapels of Reu and Amboise.

Yet observe that the first condition of this really precious provincial work is its being the best that can be done under the given circumstances; and the second is, that though provincial, it is not in the least frivolous or ephemeral, but as definitely civic, or public, in design, and as permanent in the manner of it, as the work of the most learned academies: while its execution brought out the energies of each little state, not necessarily in rivalship, but severally in the perfecting of styles which Nature had rendered it impossible for their neighbours to imitate.

93. This civic unity, and the feeling of the workman that he is performing his part in a great scene which is to endure for centuries, while yet, within the walls of his city, it is to

be a part of his own peculiar life, and to be separate from all the world besides, developes, together, whatever duty he acknowledges as a patriot, and whatever complacency he feels as an artist.

We now build, in our villages, by the rules of the Academy of London ; and if there be a little original vivacity or genius in any provincial workman, he is almost sure to spend it in making a ridiculous toy. Nothing is to me much more pathetic than the way that our neglected workmen thus throw their lives away. As I was walking the other day through the Crystal Palace, I came upon a toy which had taken the leisure of five years to make ; you dropped a penny into the chink of it, and immediately a little brass steam-engine in the middle started into nervously hurried action : some bell-ringers pulled strings at the bottom of a church steeple which had no top ; two regiments of cavalry marched out from the sides, and manœuvred in the middle ; and two well-dressed persons in a kind of opera-box expressed their satisfaction by approving gestures.

In old Ghent, or Bruges, or York, such a man as the one who made this toy, with companions similarly minded, would have been taught how to employ himself, not to their less amusement, but to better purpose ; and in their five years of leisure hours they would have carved a flamboyant crown for the belfry-tower, and would have put chimes into it that would have told the time miles away, with a pleasant tune for the hour, and a variation for the quarters, and cost the passers-by in all the city and plain not so much as the dropping of a penny into a chink.

94. Do not doubt that I feel, as strongly as any of you can feel, the utter impossibility at present of restoring provincial simplicity to our country towns.

My despondency respecting this, and nearly all other matters which I know to be necessary, is at least as great,—it is certainly more painful to me, in the decline of life,—than that which any of my younger hearers can feel. But what I have to tell you of the unchanging principles of nature, and of art, must not be affected by either hope or fear. And if I succeed

in convincing you what these principles are, there are many practical consequences which you may deduce from them, if ever you find yourselves, as young Englishmen are often likely to find themselves, in authority over foreign tribes of peculiar or limited capacities.

Be assured that you can no more drag or compress men into perfection than you can drag or compress plants. If ever you find yourselves set in positions of authority, and are entrusted to determine modes of education, ascertain first what the people you would teach have been in the habit of doing, and encourage them to do *that* better. Set no other excellence before their eyes; disturb none of their reverence for the past; do not think yourselves bound to dispel their ignorance, or to contradict their superstitions; teach them only gentleness and truth; redeem them by example from habits which you know to be unhealthy or degrading; but cherish, above all things, *local associations*, and *hereditary skill*.

It is the curse of so-called civilization to pretend to originality by the wilful invention of new methods of error, while it quenches wherever it has power, the noble originality of nations, rising out of the purity of their race, and the love of their native land.

95. I could say much more, but I think I have said enough to justify for the present what you might otherwise have thought singular in the methods I shall adopt for your exercise in the drawing schools. I shall indeed endeavour to write down for you the laws of the art which is centrally best; and to exhibit to you a certain number of its unquestionable standards: but your own actual practice shall be limited to objects which will explain to you the meaning, and awaken you to the beauty, of the art of your own country.

The first series of my lectures on sculpture must have proved to you that I do not despise either the workmanship or the mythology of Greece; but I must assert with more distinctness than even in my earliest works, the absolute unfitness of all its results to be made the guides of English students or artists.

Every nation can represent, with prudence, or success,

only the realities in which it delights. What you have with you, and before you, daily, dearest to your sight and heart, *that*, by the magic of your hand, or of your lips, you can gloriously express to others ; and what you ought to have in your sight and heart,—what, if you have not, nothing else can be truly seen or loved,—is the human life of your own people, understood in its history, and admired in its presence.

And unless that be first made beautiful, idealism must be false, and imagination monstrous.

It is your influence on the existing world which, in your studies here, you ought finally to consider ; and although it is not, in that influence, my function to direct you, I hope you will not be discontented to know that I shall ask no effort from your art-genius, beyond the rational suggestion of what we may one day hope to see actually realized in England, in the sweetness of her landscape, and the dignity of her people.

In connection with the subject of this lecture, I may mention to you that I have received an interesting letter, requesting me to assist in promoting some improvements designed in the city of Oxford.

But as the entire charm and educational power of the city of Oxford, so far as that educational power depended on reverent associations, or on visible solemnities and serenities of architecture, have been already destroyed ; and, as far as our own lives extend, destroyed, I may say, for ever, by the manufacturing suburb which heaps its ashes on one side, and the cheap-lodging suburb which heaps its brick-bats on the other; I am myself, either as antiquary or artist, absolutely indifferent to what happens next ; except on grounds respecting the possible health, cleanliness, and decency which may yet be obtained for the increasing population.

How far cleanliness and decency bear on art and science, or on the changed functions of the university to its crowd of modern students, I have partly to consider in connection with the subject of my next lecture, and I will reserve therefore any definite notice of these proposed improvements in the city, until the next occasion of meeting you.

LECTURE VI.

THE RELATION TO ART OF THE SCIENCE OF LIGHT.

24th February, 1872.

96. I HAVE now, perhaps to the exhaustion of your patience, but you will find, not without real necessity, defined the manner in which the mental tempers, ascertained by philosophy to be evil or good, retard and advance the parallel studies of science and art.

In this and the two next following lectures I shall endeavour to state to you the literal modes in which the virtues of art are connected with the principles of exact science; but now, remember, I am speaking, not of the consummate science of which art is the image; but only of what science we have actually attained, which is often little more than terminology (and even that uncertain), with only a gleam of true science here and there.

I will not delay you by any defence of the arrangement of sciences I have chosen. Of course we may at once dismiss chemistry and pure mathematics from our consideration. Chemistry can do nothing for art but mix her colours, and tell her what stones will stand weather; (I wish, at this day, she did as much;) and with pure mathematics we have nothing whatever to do; nor can that abstract form of high mathesis stoop to comprehend the simplicity of art. To a first wrangler at Cambridge, under the present conditions of his trial, statues will necessarily be stone dolls, and imaginative work unintelligible. We have, then, in true fellowship with art, only the sciences of light and form, (optics and geometry). If you will take the first syllable of the word 'geometry' to mean earth in the form of flesh, as well as of clay, the two words sum every science that regards graphic art, or of which graphic art can represent the conclusions.

97. To-day we are to speak of optics, the science of seeing; —of that power, whatever it may be, which (by Plato's definition), "through the eyes, manifests colour to us."

Hold that definition always, and remember that 'light' means accurately the power that affects the eyes of animals with the sensation proper to them. The study of the effect of light on nitrate of silver is chemistry, not optics; and what is light to *us* may indeed shine on a stone; but is not light to the stone. The "fiat lux" of creation is, therefore, in the deep sense of it, "fiat anima."

We cannot say that it is merely "fiat oculus," for the effect of light on living organism, even when sightless, cannot be separated from its influence on sight. A plant consists essentially of two parts, root and leaf: the leaf by nature seeks light, the root by nature seeks darkness: it is not warmth or cold, but essentially light and shade, which are to them, as to us, the appointed conditions of existence.

98. And you are to remember still more distinctly that the words "fiat lux" mean indeed "fiat anima," because even the power of the eye itself, as such, is *in* its animation. You do not see *with* the lens of the eye. You see *through* that, and by means of that, but you see with the soul of the eye.

99. A great physiologist said to me the other day—it was in the rashness of controversy, and ought not to be remembered as a deliberate assertion, therefore I do not give his name—still he did say—that sight was "altogether mechanical." The words simply meant, if they meant anything, that all his physiology had never taught him the difference between eyes and telescopes. Sight is an absolutely spiritual phenomenon; accurately, and only, to be so defined: and the "Let there be light," is as much, when you understand it, the ordering of intelligence, as the ordering of vision. It is the appointment of change of what had been else only a mechanical effluence from things unseen to things unseeing,—from stars that did not shine to earth that could not perceive;—the change, I say, of that blind vibration into the glory of the sun and moon for human eyes; so rendering possible also the communication out of the unfathomable truth, of that portion of truth which is good for us, and animating to us, and is set to rule over the day and night of our joy and sorrow.

100. The sun was set thus 'to rule the day.' And of late

you have learned that he was set to rule everything else that we know of. You have been taught that, by the Syrens, as a piece of entirely new knowledge, much to be exulted over. We painters, indeed, have been for some time acquainted with the general look of the sun, and long before there were painters there were wise men,—Zoroastrian and other,—who had suspected that there was power in the sun; but the Sirens of yesterday have somewhat new, it seems, to tell you of his authority, ἐπὶ χθονὶ πουλυβοτείρῃ. I take a passage, almost at random, from a recent scientific work.

"Just as the phenomena of water-formed rocks all owe their existence directly or indirectly chiefly to the sun's energy, so also do the phenomena interwoven with life. This has long been recognized by various eminent British and foreign physicists; and in 1854 Professor ——, in his memoir on the method of palæontology, asserted that organisms were but *manifestations of applied physics and applied chemistry.* Professor —— puts the generalizations of physicists in a few words: when speaking of the sun, it is remarked—'He rears the whole vegetable world, and through it the animal; the lilies of the field are his workmanship, the verdure of the meadows, and the cattle upon a thousand hills. He forms the muscle, he urges the blood, he builds the brain. His fleetness is in the lion's foot; he springs in the panther, he soars in the eagle, he slides in the snake. He builds the forest and hews it down, the power which raised the tree and that which wields the axe being one and the same.'"

All this is exceedingly true; and it is new in *one* respect, namely, in the ascertainment that the quantity of solar force necessary to produce motive power is measurable, and, in its sum, unalterable. For the rest, it was perfectly well known in Homer's time, as now, that animals could not move till they were warm; and the fact that the warmth which enables them to do so is finally traceable to the sun, would have appeared to a Greek physiologist, no more interesting than, to a Greek poet, would have been the no less certain fact, that "Tout ce qui se peut dire de beau est dans les dictionnaires; il n'y a que les mots qui sont transposées"—Everything fine, that can be

said, is in the dictionaries ; it is only that the words are transposed.

Yes, indeed ; but to the ποιητὴς the gist of the matter is *in* the transposition. The sun does, as the delighted physicist tells you, unquestionably "slide in the snake ;" but how comes he to adopt that manner, we artists ask, of (literally) transposition ?

101. The summer before last, as I was walking in the woods near the Giesbach, on the Lake of Brientz, and moving very quietly, I came suddenly on a small steel-grey serpent, lying in the middle of the path ; and it was greatly surprised to see me. Serpents, however, always have complete command of their feelings, and it looked at me for a quarter of a minute without the slightest change of posture : then, with an almost imperceptible motion, it began to withdraw itself beneath a cluster of leaves. Without in the least hastening its action, it gradually concealed the whole of its body. I was about to raise one of the leaves, when I saw what I thought was the glance of another serpent, in the thicket at the path side ; but it was the same one, which, having once withdrawn itself from observation beneath the leaves, used its utmost agility to spring into the wood ; and with so instantaneous a flash of motion, that I never saw it leave the covert, and only caught the gleam of light as it glided away into the copse.

102. Now, it was to me a matter of supreme indifference whether the force which the creature used in this action was derived from the sun, the moon, or the gas-works at Berne. What was, indeed, a matter of interest to me, was just that which would have struck a peasant, or a child ;—namely, the calculating wisdom of the creature's device ; and the exquisite grace, strength, and precision of the action by which it was accomplished.

103. I was interested then, I say, more in the device of the creature, than in its source of motion. Nevertheless, I am pleased to hear, from men of science, how necessarily that motion proceeds from the sun. But where did its *device* come from ? There is no wisdom, no device in the dust, any more than there is warmth in the dust. The springing of the

serpent is from the sun:—the wisdom of the serpent,—whence that?

104. From the sun also, is the only answer, I suppose, possible to physical science. It is not a false answer: quite true, like the other, up to a certain point. To-day, in the strength of your youth, you may know what it is to have the power of the sun taken out of your arms and legs. But when you are old, you will know what it is to have the power of the sun taken out of your minds also. Such a thing may happen to you, sometimes, even now; but it will continually happen to you when you are my age. You will no more, then, think over a matter to any good purpose after twelve o'clock in the day. It may be possible to think over, and, much more, to talk over, matters, to little, or to bad, purpose after twelve o'clock in the day. The members of your national legislature do their work, we know, by gaslight; but you don't suppose the power of the sun is in any of *their* devices? Quite seriously, all the vital functions,—and, like the rest and with the rest, the pure and wholesome faculties of the brain,—rise and set with the sun: your digestion and intellect are alike dependent on its beams; your thoughts, like your blood, flow from the force of it, in all scientific accuracy and necessity. Sol illuminatio nostra est; Sol salus nostra; Sol sapientia nostra.

And it is the final act and outcome of lowest national atheism, since it cannot deny the sun, at least to strive to do without it; to blast the day in heaven with smoke, and prolong the dance, and the council, by night, with tapers, until at last, rejoicing—Dixit insipiens in corde suo, non est Sol.

105. Well, the sliding of the serpent, and the device of the serpent, we admit, come from the sun. The flight of the dove, and its harmlessness,—do they also?

The flight,—yes, assuredly. The Innocence?—It is a new question. How of that? Between movement and non-movement—nay, between sense and non-sense—the difference rests, we say, in the power of Apollo; but between malice and innocence, where shall we find the root of *that* distinction?

106. Have you ever considered how much literal truth there is in the words—"The light of the body is the eye. If, there-

fore, thine eye be evil"—and the rest? How *can* the eye be evil? How, if evil, can it fill the whole body with darkness?

What is the meaning of having one's body *full* of darkness? It cannot mean merely being blind. Blind, you may fall in the ditch if you move; but you may be well, if at rest. But to be evil-eyed, is not that worse than to have no eyes? and instead of being only in darkness, to have darkness in *us*, portable, perfect, and eternal?

107. Well, in order to get at the meaning we may, indeed, now appeal to physical science, and ask her to help us. How many manner of eyes are there? You physical-science students should be able to tell us painters that. We only know, in a vague way, the external aspect and expression of eyes. We see, as we try to draw the endlessly-grotesque creatures about us, what infinite variety of instruments they have; but you know, far better than we do, how those instruments are constructed and directed. You know how some play in their sockets with independent revolution,—project into near-sightedness on pyramids of bone,—are brandished at the points of horns,—studded over backs and shoulders,—thrust at the ends of antennæ to pioneer for the head, or pinched up into tubercles at the corners of the lips. But how do the creatures see out of all these eyes?

108. No business of ours, you may think? Pardon me. This is no Siren's question—this is altogether business of ours, lest, perchance, any of us should see partly in the same manner. Comparative sight is a far more important question than comparative anatomy. It is no matter, though we sometimes walk—and it may often be desirable to climb—like apes; but suppose we should only *see* like apes, or like lower creatures? I can tell you, the science of optics is an essential one to us; for, exactly according to these infinitely grotesque directions and multiplications of instrument, you have correspondent, not only intellectual but moral, faculty in the soul of the creatures. Literally, if the eye be pure, the body is pure; but, if the light of the body be but darkness, how great is that darkness!

109. Have you ever looked attentively at the study I gave

you of the head of the rattlesnake? The serpent will keep its eyes fixed on you for an hour together, a vertical slit in each admitting such image of you as is possible to the rattlesnake retina, and to the rattlesnake mind. How much of you do you think it sees? I ask that, first, as a pure physical question. I do not know: it is not my business to know. You, from your schools of physical science, should bring me answer. How much of a man can a snake see? What sort of image of him is received through that deadly vertical cleft in the iris;—through the glazed blue of the ghastly lens? Make me a picture of the appearance of a man, so far as you can judge it can take place on the snake's retina. Then ask yourselves, farther, how much of speculation is possible to the snake, touching this human aspect?

110. Or, if that seem too far beneath possible inquiry, how say you of a tiger's eye, or a cat's? A cat may look at a king;—yes; but can it *see* a king when it looks at him? The beasts of prey never seem to me to *look*, in our sense, at all. Their eyes are fascinated by the motion of anything, as a kitten's by a ball; they fasten, as if drawn by an inevitable attraction, on their food. But when a cat caresses you, it never looks at you. Its heart seems to be in its back and paws, not its eyes. It will rub itself against you, or pat you with velvet tufts instead of talons; but you may talk to it an hour together, yet not rightly catch its eye. Ascend higher in the races of being—to the fawn, the dog, the horse; you will find that, according to the clearness of sight, is indeed the kindness of sight, and that at least the noble eyes of humanity look through humanity, from heart into heart, and with no mechanical vision. And the Light of the body is the eye—yes, and in happy life, the light of the heart also.

111. But now note farther: there is a mathematical power in the eye which may far transcend its moral power. When the moral power is feeble, the faculty of measurement, or of distinct delineation, may be supreme; and of comprehension none. But here, again, I want the help of the physical science schools. I believe the eagle has no scent, and hunts by sight, yet flies higher than any other bird. Now, I want to know

what the appearance is to an eagle, two thousand feet up, of a sparrow in a hedge, or of a partridge in a stubble-field. What kind of definition on the retina do these brown spots take to manifest themselves as signs of a thing eatable ; and if an eagle sees a partridge so, does it see everything else so? And then tell me, farther, does it see only a square yard at a time, and yet, as it flies, take summary of the square yards beneath it? When next you are travelling by express sixty miles an hour, past a grass bank, try to see a grasshopper, and you will get some idea of an eagle's optical business, if it takes only the line of ground underneath it. Does it take more?

112. Then, besides this faculty of clear vision, you have to consider the faculty of metric vision. Neither an eagle, nor a kingfisher, nor any other darting bird, can see things with both their eyes at the same time as completely as you and I can ; but think of their faculty of measurement as compared with ours! You will find that it takes you months of labour before you can acquire accurate power, even of *deliberate* estimate of distances with the eye ; it is one of the points to which, most of all, I have to direct your work. And the curious thing is that, given the degree of practice, you will measure ill or well with the eye in proportion to the quantity of life in you. No one can measure with a glance, when they are tired. Only the other day I got half an inch out on a foot, in drawing merely a coat of arms, because I was tired. But fancy what would happen to a swallow, if *it* was half an inch out in a foot, in flying round a corner!

113. Well, that is the first branch of the questions which we want answered by optical science ;—the actual distortion, contraction, and other modification, of the sight of different animals, as far as it can be known from the forms of their eyes. Then, secondly, we ourselves need to be taught the connection of the sense of colour with health ; the difference in the physical conditions which lead us to seek for gloom, or brightness of hue ; and the nature of purity in colour, first in the object seen, and then in the eye which prefers it.

* * * * *

(The portion of lecture here omitted referred to illlustrations of vulgarity and delicacy in colour, showing that the vulgar colours, even when they seemed most glaring, were in reality impure and dull; and destroyed each other by contention; while noble colour, intensely bright and pure, was nevertheless entirely governed and calm, so that every colour bettered and aided all the rest.)

114. You recollect how I urged you in my opening course of lectures rather to work in the school of crystalline colour than in that of shade.

Since I gave that first course of lectures, my sense of the necessity of this study of brightness primarily, and of purity and gaiety beyond all other qualities, has deeply been confirmed by the influence which the unclean horror and impious melancholy of the modern French school—most literally the school of death—has gained over the popular mind. I will not dwell upon the evil phrenzy to-day. But it is in order at once to do the best I can, in counteraction of its deadly influence, though not without other and constant reasons, that I give you heraldry, with all its splendour and its pride, its brightness of colour, and honourableness of meaning, for your main elementary practice.

115. To-day I have only time left to press on your thoughts the deeper law of this due joy in colour and light.

On any morning of the year, how many pious supplications, do you suppose, are uttered throughout educated Europe for "light?" How many lips at least pronounce the word, and, perhaps, in the plurality of instances, with some distinct idea attached to it? It is true the speakers employ it only as a metaphor. But why is their language thus metaphorical? If they mean merely to ask for spiritual knowledge or guidance, why not say so plainly instead of using this jaded figure of speech? No boy goes to his father when he wants to be taught, or helped, and asks his father to give him 'light.'

He asks what he wants, advice or protection. Why are not we also content to ask our Father for what we want, in plain English?

The metaphor, you will answer, is put into our mouths, and felt to be a beautiful and necessary one.

I admit it. In your educational series, first of all examples of modern art, is the best engraving I could find of the picture which, founded on that idea of Christ's being the Giver of Light, contains, I believe, the most true and useful piece of religious vision which realistic art has yet embodied. But why is the metaphor so necessary, or, rather, how far is it a metaphor at all? Do you think the words 'Light of the World' mean only 'Teacher or Guide of the World?' When the Sun of Justice is said to rise with health in its wings, do you suppose the image only means the correction of error? Or does it even mean so much? The Light of Heaven is needed to do that perfectly. But what we are to pray for is the Light of the *World;* nay, the Light "that lighteth *every man that cometh into the world.*"

116. You will find that it is no metaphor—nor has it ever been so.

To the Persian, the Greek, and the Christian, the sense of the power of the God of Light, has been one and the same. That power is not merely in teaching or protecting, but in the enforcement of purity of body, and of equity or justice in the heart; and this, observe, not heavenly purity, nor final justice; but, now, and here, actual purity in the midst of the world's foulness,—practical justice in the midst of the world's iniquity. And the physical strength of the organ of sight,—the physical purity of the flesh, the actual love of sweet light and stainless colour,—are the necessary signs, real, inevitable, and visible, of the prevailing presence, with any nation, or in any house, of the "Light that lighteth every man that cometh into the world."

117. *Physical* purity;—actual love of sweet light, and of fair colour. This is one palpable sign, and an entirely needful one, that we have got what we pretend to pray for every morning. That, you will find, is the meaning of Apollo's war with the Python—of your own St. George's war with the dragon. You have got that battle stamped again on every sovereign in your pockets, but do you think the sovereigns are helping, at this

instant, St. George in his battle? Once, on your gold of the Henrys' times, you had St. Michael and the dragon, and called your coins 'angels.' How much have they done lately, of angelic work, think you, in purifying the earth?

118. Purifying, literally, purging and cleansing. That is the first "sacred art" all men have to learn. And the words I deferred to the close of this lecture, about the proposed improvements in Oxford, are very few. Oxford is, indeed, capable of much improvement, but only by undoing the greater part of what has been done to it within the last twenty years; and, at present, the one thing that I would say to well-meaning persons is, 'For Heaven's sake—literally for Heaven's sake—let the place alone, and clean it.' I walked last week to Iffley—not having been there for thirty years. I did not know the church inside; I found it pitch-dark with painted glass of barbarous manufacture, and the old woman who showed it infinitely proud of letting me in at the front door instead of the side one. But close by it, not fifty yards down the hill, there was a little well—a holy well it should have been; beautiful in the recess of it, and the lovely ivy and weeds above it, had it but been cared for in a human way; but so full of frogs that you could not have dipped a cup in it without catching one.

What is the use of pretty painted glass in your churches when you have the plagues of Egypt outside of them?

119. I walked back from Iffley to Oxford by what was once the most beautiful approach to an academical city of any in Europe. Now it is a wilderness of obscure and base buildings. You think it a fine thing to go into Iffley church by the front door;—and you build cheap lodging-houses over all the approach to the chief university of English literature! That, forsooth, is your luminous cloister, and porch of Polygnotus to your temple of Apollo. And in the centre of that temple, at the very foot of the dome of the Radclyffe, between two principal colleges, the lane by which I walked from my own college half an hour ago, to this place,—Brasen-nose Lane,—is left in a state as loathsome as a back-alley in the East end of London.

120. These, I suppose are the signs of extending liberality, and disseminated advantages of education.

Gentlemen, if, as was lately said by a leading member of your Government, the function of a university be only to examine, it may indeed examine the whole mob of England in the midst of a dunghill; but it cannot teach the gentlemen of England in the midst of a dunghill; no, nor even the people of England. How many of her people it *ought* to teach is a question. We think, now-a-days, our philosophy is to light every man that cometh into the world, and to light every man equally. Well, when indeed you give up all other commerce in this island, and, as in Bacon's *New Atlantis*, only buy and sell to get God's first creature, which was light, there may be some equality of gain for us in that possession. But until then,—and we are very far from such a time,—the light cannot be given to all men equally. Nay, it is becoming questionable whether, instead of being equally distributed to all, it may not be equally withdrawn from us all: whether the ideas of purity and justice,—of loveliness which is to sanctify our peace,—and of justice which is to sanctify our battle, are not vanishing from the purpose of our policy, and even from the conception of our education.

The uses, and the desire, of seclusion, of meditation, of restraint, and of correction—are they not passing from us in the collision of worldly interests, and restless contests of mean hope, and meaner fear? What light, what health, what peace, or what security,—youths of England—do you come here now to seek? In what sense do you receive—with what sincerity do you adopt for yourselves—the ancient legend of your schools, "Dominus illuminatio mea, et salus mea; quem timebo?"

121. Remember that the ancient theory on which this university was founded,—not the theory of any one founder, observe, nor even the concluded or expressed issue of the wisdom of many; but the tacit feeling by which the work and hope of all were united and completed—was, that England should gather from among her children a certain number of purest and best, whom she might train to become, each in

their day of strength, her teachers and patterns in religion, her declarers and doers of justice in law, and her leaders in battle. Bred, it might be, by their parents, in the fond poverty of learning, or amidst the traditions and discipline of illustrious houses,—in either manner separate, from their youth up, to their glorious offices—they came here to be kindled into the lights that were to be set on the hills of England, brightest of the pious, the loyal, and the brave. Whatever corruption blighted, whatever worldliness buried, whatever sin polluted their endeavour, this conception of its meaning remained ; and was indeed so fulfilled in faithfulness, that to the men whose passions were tempered, and whose hearts confirmed, in the calm of these holy places, you, now living, owe all that is left to you of hope in heaven, and all of safety or honour that you have to trust and defend on earth.

Their children have forfeited, some by guilt, and many in folly, the leadership they inherited ; and every man in England now is to do and to learn what is right in his own eyes. How much need, therefore, that we should learn first of all what eyes are ; and what vision they ought to possess—science of sight granted only to clearness of soul ; but granted in its fulness even to mortal eyes : for though, after the skin, worms may destroy their body, happy the pure in heart, for they, yet in their flesh, shall see the Light of Heaven, and know the will of God.

LECTURE VII.

THE RELATION TO ART OF THE SCIENCES OF INORGANIC FORM.

February 29th, 1872.

122. I DID not wish in my last lecture, after I had directed your attention to the special bearing of some of the principles I pleaded for, to enforce upon you any farther general conclusions. But it is necessary now to collect the gist of what I endeavoured to show you respecting the organs of sight ; namely,

that in proportion to the physical perfectness or clearness of them is the degree in which they are raised from the perception of prey to the perception of beauty and of affection. The imperfect and brutal instrument of the eye may be vivid with malignity, or wild with hunger, or manifoldly detective with microscopic exaggeration, assisting the ingenuity of insects with a multiplied and permanent monstrosity of all things round them; but the noble human sight, careless of prey, disdainful of minuteness, and reluctant to anger, becomes clear in gentleness, proud in reverence, and joyful in love. And finally, the physical splendour of light and colour, so far from being the perception of a mechanical force by a mechanical instrument, is an entirely spiritual consciousness, accurately and absolutely proportioned to the purity of the moral nature, and to the force of its natural and wise affections.

123. That was the sum of what I wished to show you in my last lecture; and observe, that what remains to me doubtful in these things,—and it is much—I do not trouble you with. Only what I know that on experiment you can ascertain for yourselves, I tell you, and illustrate, for the time, as well as I can. Experiments in art are difficult, and take years to try; you may at first fail in them, as you might in a chemical analysis; but in all the matters which in this place I shall urge on your attention I can assure you of the final results.

That, then, being the sum of what I could tell you with certainty respecting the methods of sight, I have next to assure you that this faculty of sight, disciplined and pure, is the only proper faculty which the graphic artist is to use in his inquiries into nature. His office is to show her appearances; his duty is to know them. It is not his duty, though it may be sometimes for his convenience, while it is always at his peril, that he knows more;—knows the *causes* of appearances, or the essence of the things that produce them.

124. Once again, therefore, I must limit my application of the word science with respect to art. I told you that I did not mean by 'science' such knowledge as that triangles on equal bases and between parallels are equal, but such knowledge as that the stars in Cassiopeia are in the form of a *W*.

But, farther still, it is not to be considered as science, for an artist, that they are stars at all. What *he* has to know is that they are luminous points which twinkle in a certain manner, and are pale yellow, or deep yellow, and may be quite deceptively imitated at a certain distance by brass-headed nails. This he ought to know, and to remember accurately, and his art knowledge—the science, that is to say—of which his art is to be the reflection, is the sum of knowledges of this sort; his memory of the look of the sun and moon at such and such times, through such and such clouds; his memory of the look of mountains,—of the look of sea,—of the look of human faces.

125. Perhaps you would not call that 'science' at all. It is no matter what either you or I call it. It *is* science of a certain order of facts. Two summers ago, looking from Verona at sunset, I saw the mountains beyond the Lago di Garda of a strange blue, vivid and rich like the bloom of a damson. I never saw a mountain-blue of that particular quality before or since. My science as an artist consists in my knowing that sort of blue from every other sort, and in my perfect recollection that this particular blue had such and such a green associated with it in the near fields. I have nothing whatever to do with the atmospheric causes of the colour: that knowledge would merely occupy my brains wastefully, and warp my artistic attention and energy from their point. Or to take a simpler instance yet: Turner, in his early life, was sometimes good-natured, and would show people what he was about. He was one day making a drawing of Plymouth harbour, with some ships at the distance of a mile or two, seen against the light. Having shown this drawing to a naval officer, the naval officer observed with surprise, and objected with very justifiable indignation, that the ships of the line had no port-holes. "No," said Turner, "certainly not. If you will walk up to Mount Edgecumbe, and look at the ships against the sunset, you will find you can't see the port-holes." "Well, but," said the naval officer, still indignant, "you know the port-holes are there." "Yes," said Turner, "I know that well enough; but my business is to draw what I see, and not what I know is there."

126. Now, that is the law of all fine artistic work whatsoever ; and, more than that, it is, on the whole, perilous to you, and undesirable, that you *should* know what is there. If, indeed, you have so perfectly disciplined your sight that it cannot be influenced by prejudice ;—if you are sure that none of your knowledge of what is there will be allowed to assert itself ; and that you can reflect the ship as simply as the sea beneath it does, though you may know it with the intelligence of a sailor,—then, indeed, you may allow yourself the pleasure, and what will sometimes be the safeguard from error, of learning what ships, or stars, or mountains, are in reality ; but the ordinary powers of human perception are almost certain to be disturbed by the knowledge of the real nature of what they draw : and, until you are quite fearless of your faithfulness to the appearances of things, the less you know of their reality the better.

127. And it is precisely in this passive and naïve simplicity that art becomes, not only greatest in herself, but most useful to science. If she *knew* anything of what she was representing, she would exhibit that partial knowledge with complacency ; and miss the points beside it, and beyond it. Two painters draw the same mountain ; the one has got unluckily into his head some curiosity about glacier marking ; and the other has a theory of cleavage. The one will scratch his mountain all over ;—the other split it to pieces ; and both drawings will be equally useless for the purposes of honest science.

128. Any of you who chance to know my books cannot but be surprised at my saying these things ; for, of all writers on art, I suppose there is no one who appeals so often as I do to physical science. But observe, I appeal as a critic of art, never as a master of it. Turner made drawings of mountains and clouds which the public said were absurd. I said, on the contrary, they were the only true drawings of mountains and clouds ever made yet : and I proved this to be so, as only it could be proved, by steady test of physical science : but Turner had drawn his mountains rightly, long before their structure was known to any geologist in Europe ; and has

painted perfectly truths of anatomy in clouds which I challenge any meteorologist in Europe to explain at this day.

129. And indeed I was obliged to leave *Modern Painters* incomplete, or, rather, as a mere sketch of intention, in analysis of the forms of cloud and wave, because I had not scientific data enough to appeal to. Just reflect for an instant how absolutely whatever has been done in art to represent these most familiar, yet most spectral forms of cloud—utterly inorganic, yet, by spiritual ordinance, in their kindness fair, and in their anger frightful,—how all that has yet been done to represent them, from the undulating bands of blue and white which give to heraldry its nebule bearing, to the finished and deceptive skies of Turner, has been done without one syllable of help from the lips of science.*

130. The rain which flooded our fields the Sunday before last, was followed, as you will remember, by bright days, of which Tuesday the 20th was, in London, notable for the splendour, towards the afternoon, of its white cumulus clouds. There has been so much black east wind lately, and so much fog and artificial gloom, besides, that I find it is actually some two years since I last saw a noble cumulus cloud under full light. I chanced to be standing under the Victoria Tower at Westminster, when the largest mass of them floated past, that day, from the north-west; and I was more impressed than ever yet by the awfulness of the cloud-form, and its unaccountableness, in the present state of our knowledge. The Victoria Tower, seen against it, had no magnitude: it was like looking at Mont Blanc over a lamp-post. The domes of cloud-snow were heaped as definitely; their broken flanks were as grey and firm as rocks, and the whole mountain, of a compass and height in heaven which only became more and

* Rubens' rainbow, in the Loan Exhibition this year, was of dull blue, *darker* than the sky, in a scene lighted from the side of the rainbow. Rubens is not to be blamed for ignorance of optics, but for never having so much as looked at a rainbow carefully: and I do not believe that my friend Mr. Alfred Hunt, whose study of rainbow, in the rooms of the Water Colour Society last year, was unrivalled, for vividness and truth, by any I know, learned how to paint it by studying optics.

more inconceivable as the eye strove to ascend it, was passing behind the tower with a steady march, whose swiftness must in reality have been that of a tempest: yet, along all the ravines of vapour, precipice kept pace with precipice, and not one thrust another.

131. What is it that hews them out? Why is the blue sky pure there,—cloud solid here; and edged like marble: and why does the state of the blue sky pass into the state of cloud, in that calm advance?

It is true that you can more or less imitate the forms of cloud with explosive vapour or steam; but the steam melts instantly, and the explosive vapor dissipates itself. The cloud, of perfect form, proceeds unchanged. It is not an explosion, but an enduring and advancing presence. The more you think of it, the less explicable it will become to you.

132. That this should yet be unexplained in the kingdom of the air is, however, no marvel, since aspects of a simpler kind are unexplained in the earth, which we tread, and in the water which we drink and wash with. You seldom pass a day without receiving some pleasure from the cloudings in marble; can you explain how the stone was clouded? You certainly do not pass a day without washing your hands. Can you explain the frame of a soap-bubble?

133. I have allowed myself, by way of showing at once what I wanted to come to, to overlook the proper arrangement of my subject, and I must draw back a little.

For all his own purposes, merely graphic, we say, if an artist's eye is fine and faithful, the fewer points of science he has in his head, the better. But for purposes *more* than graphic, in order that he may feel towards things as he should, and choose them as we should, he ought to know something about them; and if he is quite sure that he can receive the science of them without letting himself become uncandid and narrow in observation, it is very desirable that he should be acquainted with a little of the alphabet of structure,—just as much as may quicken and certify his observation, without prejudicing it. Cautiously, therefore, and receiving it as a perilous indulgence, he may venture to learn, perhaps, as much astron-

omy as may prevent his carelessly putting the new moon wrong side upwards; and as much botany as will prevent him from confusing, which I am sorry to say Turner did, too often, Scotch firs with stone pines. He may concede so much to geology as to choose, of two equally picturesque views, one that illustrates rather than conceals the structure of a crag: and perhaps, once or twice in his life, a portrait painter might advantageously observe how unlike a skull is to a face. And for you, who are to use your drawing as one element in general education, it is desirable that physical science should assist in the attainment of truth which a real painter seizes by practice of eye.

134. For this purpose I shall appeal to your masters in science to furnish us, as they have leisure, with some simple and readable accounts of the structure of things which we have to draw continually. Such scientific accounts will not usually much help us to draw them, but will make the drawing, when done, far more valuable to us.

I have told you, for instance, that nobody—at least, no painter—can at present explain the structure of a bubble. To know that structure will not help you to draw sea-foam, but it will make you look at sea-foam with greater interest.

I am not able now to watch the course of modern science, and may perhaps be in error in thinking that the frame of a bubble is still unexplained. But I have not yet met by any chance, with an account of the forces which, under concussion, arrange the particles of a fluid into a globular film; though, from what I know of cohesion, gravity, and the nature of the atmosphere, I can make some shift to guess at the kind of action that takes place in forming a single bubble. But how one bubble absorbs another without breaking it; or what exact methods of tension prepare for the change of form, and establish it in an instant, I am utterly at a loss to conceive.

Here, I think, then, is one familiar matter which, up to the possible point, science might condescendingly interpret for us. The exhaustion of the film in preparation for its change; the determination of the smaller bubble to yield itself up to the larger; the instantaneous flash into the new shape, and the

swift adjustment of the rectangular lines of intersection in the marvellous vaulting—all this I want to be explained to us, so that, if we cannot understand it altogether, we may at least know exactly how far we do, and how far we do not.

135. And, next to the laws of the formation of a bubble, I want to see, in simple statement, those of the formation of a bottle. Namely, the laws of its resistance to fracture, from without and within, by concussion or explosion; and the due relations of form to thickness of material; so that, putting the problem in a constant form, we may know, out of a given quantity of material, how to make the strongest bottle under given limitations as to shape. For instance,—you have so much glass given you: your bottle is to hold two pints, to be flat-bottomed, and so narrow and long in the neck that you can grasp it with your hand. What will be its best ultimate form?

136. Probably, if you thought it courteous, you would laugh at me just now; and, at any rate, are thinking to yourselves that *this* art problem at least needs no scientific investigation, having been practically solved, long ago, by the imperative human instinct for the preservation of bottled stout. But you are only feeling now, gentlemen, and recognizing in one instance, what I tell you of all. Every scientific investigation is, in the same sense as this would be, useless to the trained master of any art. To the soap-bubble blower, and glass-blower,—to the pot-maker and bottle-maker,—if dexterous craftsmen, your science is of no account; and the imp of their art may be imagined as always looking triumphantly and contemptuously, out of its successfully-produced bottle, on the vain analysis of centrifugal impulse and inflating breath.

137. Nevertheless, in the present confusion of instinct and opinion as to beautiful form, it is desirable to have these two questions more accurately dealt with. For observe what they branch into. The coloured segments of globe out of which form is constituted, are portions of spherical vaults constructed of fluent particles. You cannot have the principles of spherical vaulting put in more abstract terms.

Then considering the arch as the section of a vault, the greater number of Gothic arches may be regarded as the intersections of two spherical vaults.

Simple Gothic foliation is merely the triple, quadruple, or variously multiple repetition of such intersection.

And the beauty—(observe this carefully)—the beauty of Gothic arches, and of their foliation, always involves reference to the strength of their structure ; but only to their structure as *self-sustaining ; not as sustaining superincumbent weight.* In the most literal of senses, "the earth hath bubbles as the water hath ; and these are of them."

138. What do you think made Michael Angelo look back to the dome of Santa Maria del Fiore, saying, "Like thee I will not build one, better than thee I cannot?" To you or to me there is nothing in that dome different from hundreds of others. Which of you, who have been at Florence, can tell me honestly he saw anything wonderful in it? But Michael Angelo knew the exact proportion of thickness to weight and curvature which enabled it to stand as securely as a mountain of adamant, though it was only a film of clay, as frail, in proportion to its bulk, as a sea-shell. Over the massy war towers of the city it floated ; fragile, yet without fear. "Better than thee I cannot."

139. Then think what the investigation of the bottle branches into, joined with that of its necessary companion, the cup. There is a sketch for you of the cup of cups, the pure Greek κάνθαρος, which is always in the hand of Dionusos, as the thunderbolt is in that of Zeus. Learn but to draw that thoroughly, and you won't have much more to learn of abstract form ; for the investigation of the kinds of line that limit this will lead you into all the practical geometry of nature ; the ellipses of her sea-bays in perspective ; the parabolas of her waterfalls and fountains in profile ; the catenary curves of their falling festoons in front ; the infinite variety of accelerated or retarded curvature in every condition of mountain debris. But do you think mere science can measure for you any of these things? That book on the table is one of the four volumes of Sir William Hamil-

ton's Greek Vases. He has measured every important vase vertically and horizontally, with precision altogether admirable, and which may, I hope, induce you to have patience with me in the much less complex, though even more scrupulous, measurements which I shall require on my own examples. Yet English pottery remains precisely where it was, in spite of all this investigation. Do you fancy a Greek workman ever made a vase by measurement? He dashed it from his hand on the wheel, and it was beautiful: and a Venetian glass-blower swept you a curve of crystal from the end of his pipe; and Reynolds or Tintoret swept a curve of colour from their pencils, as a musician the cadence of a note, unerring, and to be measured, if you please, afterwards, with the exactitude of Divine law.

140. But, if the truth and beauty of art are thus beyond attainment by help of science, how much more its invention? I must defer what I have chiefly to say on this head till next lecture; but to-day I can illustrate, simply, the position of invention with respect to science in one very important group of inorganic forms—those of drapery.

141. If you throw at random over a rod, a piece of drapery of any material which will fall into graceful folds, you will get a series of sinuous folds in catenary curves: and any given disposition of these will be nearly as agreeable as any other; though, if you throw the stuff on the rod a thousand times, it will not fall twice alike.

142. But suppose, instead of a straight rod, you take a beautiful nude statue, and throw the piece of linen over that. You may encumber and conceal its form altogether; you may entirely conceal portions of the limbs, and show others; or you may leave indications, under the thin veil, of the contours which are hidden; but in ninety-nine cases out of a hundred you will wish the drapery taken off again; you will feel that the folds are in some sort discrepant and harmful, and eagerly snatch them away. However passive the material, however softly accommodated to the limbs, the wrinklings will always look foreign to the form, like the drip of a heavy shower of rain falling off it, and will load themselves in the

hollows uncomfortably. You will have to pull them about; to stretch them one way, loosen them in another, and supply the quantity of government which a living person would have given to the dress, before it becomes at all pleasing to you.

143. Doing your best, you will still not succeed to your mind, provided you have, indeed, a mind worth pleasing. No adjustment that you can make, on the quiet figure, will give any approximation to the look of drapery which has previously accommodated itself to the action which brought the figure into the position in which it stays. On a really living person, gracefully dressed, and who has paused from graceful motion, you will get, again and again, arrangements of fold which you can admire: but they will not remain to be copied, the first following movement alters all. If you had your photographic plate ready and could photograph—I don't know if it has been tried—girls, like waves, as they move, you would get what was indeed lovely; and yet, when you compared even such results with fine sculpture, you would see that there was something wanting;—that, in the deepest sense, *all* was yet wanting.

144. Yet this is the most that the plurality of artists can do, or think of doing. They draw the nude figure with careful anatomy; they put their model or their lay figure into the required position; they arrange draperies on it to their mind, and paint them from the reality. All such work is absolutely valueless,—worse than valueless in the end of it, blinding us to the qualities of fine work.

In true design it is in this matter of drapery as in all else. There is not a fold too much, and all that are given aid the expression, whether of movement or character. Here is a bit of Greek sculpture, with many folds; here is a bit of Christian sculpture with few. From the many, not one could be removed without harm, and to the few, not one could be added. This alone is art, and no science will ever enable you to do this, but the poetic and fabric instincts only.

145. Nevertheless, however far above science, your work must comply with all the requirements of science. The first thing you have to ask is, Is it scientifically right? That is

still nothing, but it is essential. In modern imitations of Gothic work the artists think it religious to be wrong, and that Heaven will be propitious only to saints whose stoles or petticoats stand or fall into incredible angles.

All that nonsense I will soon get well out of your heads by enabling you to make accurate studies from real drapery, so that you may be able to detect in a moment whether the folds in any design are natural and true to the form, or artificial and ridiculous.

146. But this, which is the science of drapery, will never do more than guard you in your first attempts in the art of it. Nay, when once you have mastered the elements of such science, the most sickening of all work to you will be that in which the draperies are all right,—and nothing else is. In the present state of our schools one of the chief mean merits against which I shall have to warn you is the imitation of what milliners admire : nay, in many a piece of the best art I shall have to show you that the draperies are, to some extent, intentionally ill-done, *lest* you should look at them. Yet, through every complexity of desirableness, and counter-peril, hold to the constant and simple law I have always given you —that the best work must be right in the beginning, and lovely in the end.

147. Finally, observe that what is true respecting these simple forms of drapery is true of all other inorganic form. It must become organic under the artist's hand by his invention. As there must not be a fold in a vestment too few or too many, there must not, in noble landscape, be a fold in a mountain, too few or too many. As you will never get from real linen cloth, by copying it ever so faithfully, the drapery of a noble statue, so you will never get from real mountains, copy them never so faithfully, the forms of noble landscape. Anything more beautiful than the photographs of the Valley of Chamouni, now in your print-sellers' windows, cannot be conceived. For geographical and geological purposes they are worth anything ; for art purposes, worth—a good deal less than zero. You may learn much from them, and will mislearn more. But in Turner's "Valley of Chamouni" the moun-

tains have not a fold too much, nor too little. There are no such mountains at Chamouni: they are the ghosts of eternal mountains, such as have been, and shall be, for evermore.

148. So now in sum, for I may have confused you by illustration,—

I. You are, in drawing, to try only to represent the appearances of things, never what you know the things to be.

II. Those appearances you are to test by the appliance of the scientific laws relating to aspect; and to learn, by accurate measurement, and the most fixed attention, to represent with absolute fidelity.

III. Having learned to represent actual appearances faithfully, if you have any human faculty of your own, visionary appearances will take place to you which will be nobler and more true than any actual or material appearances; and the realization of these is the function of every fine art, which is founded absolutely, therefore, in truth, and consists absolutely in imagination. And once more we may conclude with, but now using them in a deeper sense, the words of our master—"The best in this kind are but shadows."

It is to be our task, gentlemen, to endeavour that they may be at least so much.

LECTURE VIII.

THE RELATION TO ART OF THE SCIENCES OF ORGANIC FORM.

March 2nd, 1872.

149. I HAVE next in order to speak of the relation of art to science, in dealing with its own principal subject—organic form, as the expression of life. And, as in my former lecture, I will tell you at once what I wish chiefly to enforce upon you.

First.—but this I shall have no time to dwell upon,—That the true power of art must be founded on a general knowledge of organic nature, not of the human frame only.

Secondly.—That in representing this organic nature, quite as much as in representing inanimate things, Art has nothing to do with structures, causes, or absolute facts; but only with appearances.

Thirdly.—That in representing these appearances, she is more hindered than helped by the knowledge of things which do not externally appear; and therefore, that the study of anatomy generally, whether of plants, animals, or man, is an impediment to graphic art.

Fourthly.—That especially in the treatment and conception of the human form, the habit of contemplating its anatomical structure is not only a hindrance, but a degradation; and farther yet, that even the study of the external form of the human body, more exposed than it may be healthily and decently in daily life, has been essentially destructive to every school of art in which it has been practised.

150. These four statements I undertake, in the course of our future study, gradually to confirm to you. In a single lecture I, of course, have time to do little more than clearly state and explain them.

First, I tell you that art should take cognizance of all living things, and know them, so as to be able to name, that is to say, in the truest distinctive way, to describe them. The Creator daily brings, before the noblest of His creatures, every lower creature, that whatsoever Man calls it, may be the name thereof.

Secondly.—In representing, nay, in thinking of, and caring for, these beasts, man has to think of them essentially with their skins on them, and with their souls in them. He is to know how they are spotted, wrinkled, furred, and feathered; and what the look of them is, in the eyes; and what grasp, or cling, or trot, or pat, in their paws and claws. He is to take every sort of view of them, in fact, except one,—the Butcher's view. He is never to think of them as bones and meat.

Thirdly.—In the representation of their appearance, the knowledge of bones and meat, of joint and muscle, is more a hindrance than a help.

Lastly—With regard to the human form, such knowledge is a degradation as well as a hindrance ; and even the study of the nude is injurious, beyond the limits of honour and decency in daily life.

Those are my four positions. I will not detain you by dwelling on the first two—that we should know every sort of beast, and know it with its skin on it, and its soul within it. What you feel to be a paradox—perhaps you think an incredible and insolent paradox—is my telling you that you will be hindered from doing this by the study of anatomy. I address myself, therefore, only to the last two points.

151. Among your standard engravings, I have put that of the picture by Titian, in the Strozzi Palace, of a little Strozzi maiden feeding her dog. I am going to put in the Rudimentary Series, where you can always get at it (R. 125), this much more delightful, though not in all points standard, picture by Reynolds, of an infant daughter of George the Third's, with her Skye terrier.

I have no doubt these dogs are the authentic pets, given in as true portraiture as their mistresses ; and that the little Princess of Florence and Princess of England were both shown in the company which, at that age, they best liked ;—the elder feeding her favourite, and the baby with her arms about the neck of hers.

But the custom of putting either the dog, or some inferior animal, to be either in contrast, or modest companionship, with the nobleness of human form and thought, is a piece of what may be called mental comparative anatomy, which has its beginning very far back in art indeed. One of quite the most interesting Greek vases in the British Museum is that of which the painting long went under the title of "Anacreon and his Dog." It is a Greek lyric poet, singing with lifted head, in the action given to Orpheus and Philammon in their moments of highest inspiration ; while, entirely unaffected by, and superior to the music, there walks beside him a sharp-

nosed and curly-tailed dog, painted in what the exclusive admirers of Greek art would, I suppose, call an ideal manner; that is to say, his tail is more like a display of fireworks than a tail; but the ideal evidently founded on the material existence of a charming, though supercilious animal, not unlike the one which is at present the chief solace of my labours in Oxford, Dr. Acland's dog Bustle. I might go much farther back than this; but at all events, from the time of the golden dog of Pandareos, the fawn of Diana, and the eagle, owl and peacock of the great Greek gods, you find a succession of animal types—centralized in the Middle Ages, of course, by the hound and the falcon—used in art either to symbolize, or contrast with, dignity in human persons. In modern portraiture, the custom has become vulgarized by the anxiety of everybody who sends their picture, or their children's, to the Royal Academy, to have it demonstrated to the public by the exhibition of a pony, and a dog with a whip in its mouth, that they live, at the proper season, in a country house. But by the greater masters the thing is done always with a deep sense of the mystery of the comparative existences of living creatures, and of the methods of vice and virtue exhibited by them. Albert Dürer scarcely ever draws a scene in the life of the Virgin, without putting into the foreground some idle cherubs at play with rabbits or kittens; and sometimes lets his love of the grotesque get entirely the better of him, as in the engraving of the Madonna with the monkey. Veronese disturbs the interview of the queen of Sheba with Solomon, by the petulance of the queen of Sheba's Blenheim spaniel, whom Solomon has not treated with sufficient respect; and when Veronese is introduced himself, with all his family, to the Madonna, I am sorry to say that his own pet dog turns its back to the Madonna, and walks out of the room.

152. But among all these symbolic playfulnesses of the higher masters, there is not one more perfect than this study by Reynolds of the infant English Princess with her wire-haired terrier. He has put out his whole strength to show the infinite differences, yet the blessed harmonies, between the human

and the lower nature. First, having a blue-eyed,* soft baby to paint, he gives its full face, as round as may be, and rounds its eyes to complete openness, because somebody is coming whom it does not know. But it opens its eyes in quiet wonder, and is not disturbed, but behaves as a princess should. Beside this soft, serenely-minded baby, Reynolds has put the roughest and roughest-minded dog he could think of. Instead of the full round eyes, you have only the dark places in the hair where you know the terrier's eyes must be—sharp enough, if you could see them—and very certainly seeing you, but not at all wondering at you, like the baby's. For the terrier has instantly made up his mind about you; and above all, that you have no business there; and is growling and snarling in his fiercest manner, though without moving from his mistress's side, or from under her arm. You have thus the full contrast between the grace and true charm of the child, who "thinketh no evil" of you, and the uncharitable narrowness of nature in the grown-up dog of the world, who thinks nothing but evil of you. But the dog's virtue and faithfulness are not told less clearly; the baby evidently uses the creature just as much for a pillow as a playmate;—buries its arm in the rough hair of it with a loving confidence, half already converting itself to protection: and baby will take care of dog, and dog of baby, through all chances of time and fortune.

153. Now the exquisiteness with which the painter has applied all his skill in composition, all his dexterity in touch of pencil, and all his experience of the sources of expression, to complete the rendering of his comparison, cannot, in any of the finest subtleties of it, be explained; but the first steps of its science may be easily traced; and with little pains you may see how a simple and large mass of white is opposed to a rugged one of grey; how the child's face is put in front light, that no shadow may detract from the brightness which makes her, as in Arabian legends, "a princess like to the full moon" —how, in this halo, the lips and eyes are brought out in deep and rich colour, while scarcely a gleam of reflection is allowed

* I have not seen the picture: in the engraving the tint of the eyes would properly represent grey or blue.

to disturb the quietness of the eyes ;—(the terrier's, you feel, would glitter enough, if you could see them, and flash back in shallow fire ; but the princess's eyes are thinking, and do not flash ;)—how the quaint cap surrounds, with its not wholly painless formalism, the courtly and patient face, opposed to the rugged and undressed wild one ; and how the easy grace of soft limb and rounded neck are cast, in repose, against the uneasily gathered up crouching of the short legs, and petulant shrug of the eager shoulders, in the ignobler creature.

154. Now, in his doing of all this, Sir Joshua was thinking of, and seeing, whatever was best in the creatures, within and without. Whatever was most perfectly doggish—perfectly childish—in soul and body. The absolute truth of outer aspect, and of inner mind, he seizes infallibly ; but there is one part of the creatures which he never, for an instant, thinks of, or cares for,—their bones. Do you suppose that, from first to last, in painting such a picture, it would ever enter Sir Joshua's mind to think what a dog's skull would look like, beside a baby's ? The quite essential facts to him are those of which the skull gives no information—that the baby has a flattish pink nose, and the dog a bossy black one. You might dissect all the dead dogs in the water supply of London without finding out what, as a painter, it is here your only business precisely to know,—what sort of shininess there is on the end of a terrier's nose ; and for the position and action of the creatures, all the four doctors together, who set Bustle's leg for him the other day, when he jumped out a two-pair-of-stairs window to bark at the volunteers, could not have told Sir Joshua how to make his crouching terrier look ready to snap, nor how to throw the child's arm over its neck in complete, yet not languid, rest.

155. Sir Joshua, then, does not think of, or care for, anatomy, in this picture ; but, if he had, would it have done him harm? You may easily see that the child's limbs are not drawn with the precision that Mantegna, Dürer, or Michael Angelo would have given them. Would some of their science not have bettered the picture ?

I can show you exactly the sort of influence their science would have had.

In your Rudimentary Series, I have placed in sequence two of Dürer's most celebrated plates, (R. 65, R. 66,) the coat of arms with the skull, and the Madonna crowned by angels; and that you may see precisely what qualities are, and are not, in this last, I have enlarged the head by photography, and placed it in your Reference Series (117). You will find the skull is perfectly understood, and exquisitely engraved, but the face, imperfectly understood and coarsely engraved. No man who had studied the skull as carefully as Dürer did, ever could engrave a face beautifully, for the perception of the bones continually thrusts itself upon him in wrong places, and in trying to conquer or modify it, he distorts the flesh. Where the features are marked, and full of character, he can quit himself of the impression; but in the rounded contour of women's faces he is always forced to think of the skull; and even in his ordinary work often draws more of bones and hair, than face.

156. I could easily give you more definite, but very disagreeable, proofs of the evil of knowing the anatomy of the human face too intimately: but will rather give you further evidence by examining the skull and face of the creature who has taught us so much already,—the eagle.

Here is a slight sketch of the skull of the golden eagle. It may be interesting to you sometimes to make such drawings roughly, for the sake of the points of mechanical arrangement —as here in the circular bones of the eye-socket; but don't suppose that drawing these a million of times over will ever help you in the least to draw an eagle itself. On the contrary, it would almost to a certainty hinder you from noticing the essential point in an eagle's head—the projection of the brow. All the main work of the eagle's eye is, as we saw, in looking down. To keep the sunshine above from teasing it, the eye is put under a triangular penthouse, which is precisely the most characteristic thing in the bird's whole aspect. Its hooked beak does not materially distinguish it from a cockatoo, but its hooded eye does. But that projection is not accounted

for in the skull; and, so little does the anatomist care about it, that you may hunt through the best modern works on ornithology; and you will find eagles drawn with all manner of dissections of skulls, claws, clavicles, sternums, and gizzards; but you won't find so much as one poor falcon drawn with a falcon's eye.

157. But there is another quite essential point in an eagle's head, in comprehending which, again, the skull will not help us. The skull in the human creature fails in three essential points. It is eyeless, noseless, and lipless. It fails only in an eagle in the two points of eye and lip; for an eagle has no nose worth mentioning; his beak is only a prolongation of his jaws. But he has lips very much worth mentioning, and of which his skull gives no account. One misses them much from a human skull:—"Here hung those lips that I have kissed, I know not how oft,"—but from an eagle's you miss them more, for he is distinct from other birds in having with his own eagle's eye, a dog's lips, or very nearly such; an entirely fleshy and ringent mouth, bluish pink, with a perpetual grin upon it.

So that if you look, not at his skull, but at him, attentively enough, you will precisely get Æschylus's notion of him, essential in the Greek mind—*πτηνὸς κύων δαφοινὸς αἰετὸς*—and then, if you want to see the use of his beak or bill, as distinguished from a dog's teeth, take a drawing from the falconry of the middle ages, and you will see how a piece of flesh becomes a *rag* to him, a thing to tear up,—*διαρταμήσει σώματος μέγα ῥάκος*. There you have it precisely, in a falcon I got out of Mr. Coxe's favourite fourteenth century missal.

Now look through your natural history books from end to end; see if you can find one drawing, with all their anatomy, which shows you either the eagle's eye, his lips, or this essential use of his beak, so as to enable you thoroughly to understand those two lines of Æschylus: then, look at this Greek eagle on a coin of Elis, R. 50, and this Pisan one, in marble, Edu. 131, and you will not doubt any more that it is better to look at the living birds, than to cut them to pieces.

158. Anatomy, then,—I will assume that you grant, for the

moment, as I will assuredly prove to you eventually,—will not help us to draw the true appearances of things. But may it not add to our intelligent conception of their nature?

So far from doing this, the anatomical study which has, to our much degradation and misfortune, usurped the place, and taken the name, at once of art and of natural history, has produced the most singularly mischievous effect on the faculty of delineation with respect to different races of animals. In all recent books on natural history, you will find the ridiculous and ugly creatures done well, the noble and beautiful creatures done, I do not say merely ill, but in no wise. You will find the law hold universally that apes, pigs, rats, weasels, foxes, and the like,—but especially apes,—are drawn admirably; but not a stag, not a lamb, not a horse, not a lion;—the nobler the creature, the more stupidly it is always drawn, not from feebleness of art power, but a far deadlier fault than that—a total want of sympathy with the noble qualities of any creature, and a loathsome delight in their disgusting qualities. And this law is so thoroughly carried out that the great French historian of the mammalia, St. Hilaire, chooses, as his single example of the highest of the race, the most nearly bestial type he can find, human, in the world. Let no girl ever look at the book, nor any youth who is willing to take my word; let those who doubt me, look at the example he has given of womankind.

159. But admit that this is only French anatomy, or ill-studied anatomy, and that, rightly studied, as Dr. Acland, for instance, would teach it us, it might do us some kind of good.

I must reserve for my lectures on the school of Florence any analysis of the effect of anatomical study on European art and character; you will find some notice of it in my lecture on Michael Angelo; and in the course of that analysis, it will be necessary for me to withdraw the statement made in the *Stones of Venice*, that anatomical science was helpful to great men, though harmful to mean ones. I am now certain that the greater the intellect, the more fatal are the forms of degradation to which it becomes liable in the course of anatomical study: and that to Michael Angelo, of all men, the

mischief was greatest, in destroying his religious passion and imagination, and leading him to make every spiritual conception subordinate to the display of his knowledge of the body. To-day, however, I only wish to give you my reasons for withdrawing anatomy from your course of study in these schools.

160. I do so, first, simply with reference to our time, convenience, and systematic method. It has become a habit with drawing-masters to confuse this particular science of anatomy with their own art of drawing, though they confuse no other science with that art. Admit that, in order to draw a tree, you should have a knowledge of botany: Do you expect me to teach you botany here? Whatever I want you to know of it I shall send you to your Professor of Botany, and to the Botanic Gardens, to learn. I may, perhaps, give you a rough sketch of the lines of timber in a bough, but nothing more.

So again, admit that, to draw a stone, you need a knowledge of geology. I have told you that you do not, but admit it. Do you expect me to teach you, here, the relations between quartz and oxide of iron; or between the Silurian and Permian systems? If you care about them, go to Professor Phillips, and come back to me when you know them.

And, in like manner, admit that, to draw a man, you want the knowledge of his bones:—you do not; but admit that you do. Why should you expect me, here, to teach you the most difficult of all the sciences? If you want to know it, go to an hospital, and cut dead bodies to pieces till you are satisfied; then come to me, and I'll make a shift to teach you to draw, even then—though your eyes and memory will be full of horrible things which Heaven never meant you so much as a glance at. But don't expect me to help you in that ghastly work; any more than among the furnaces and retorts in Professor Maskelyne's laboratory.

161. Let us take one more step in the logical sequence. You do not, I have told you, need either chemistry, botany, geology, or anatomy, to enable you to understand art, or produce it. But there is one science which you *must* be acquainted with. You must very intensely and thoroughly

know—how to behave. You cannot so much as feel the difference between two casts of drapery, between two tendencies of line,—how much less between dignity and baseness of gesture,—but by your own dignity of character. But, though this is an essential science, and although I cannot teach you to lay one line beside another rightly, unless you have this science, you don't expect me in these schools to teach you how to behave, if you happen not to know it before!

162. Well, here is one reason, and a sufficiently logical one, as you will find it on consideration, for the exclusion of anatomical study from *all* drawing schools. But there is a more cogent reason than this for its exclusion, especially from elementary drawing-schools. It may be sometimes desirable that a student should see, as I said, how very unlike a face a skull is; and at a leisure moment he may, without much harm, observe the equivocation between knees and ankles by which it is contrived that his legs, if properly made at the joints, will only bend backwards, but a crane's forwards. But that a young boy, or girl, brought up fresh to the schools of art from the country, should be set to stare, against every particle of wholesome grain in their natures, at the Elgin marbles, and to draw them with dismal application, until they imagine they like them, makes the whole youthful temper rotten with affectation, and sickly with strained and ambitious fancy. It is still worse for young persons to be compelled to endure the horror of the dissecting-room, or to be made familiar with the conditions of actual bodily form, in a climate where the restraints of dress must forever prevent the body from being perfect in contour, or regarded with entirely simple feeling.

163. I have now, perhaps too often for your patience, told you that you must always draw for the sake of your subject—never for the sake of your picture. What you wish to see in reality, that you should make an effort to show, in pictures and statues; what you do not wish to see in reality, you should not try to draw.

But there is, I suppose, a very general impression on the mind of persons interested in the arts, that because nations

living in cold climates are necessarily unfamiliar with the sight of the naked body, therefore, art should take it upon herself to show it them ; and that they will be elevated in thought, and made more simple and grave in temper, by seeing, at least in colour and marble, what the people of the south saw in its verity.

164. I have neither time nor inclination to enter at present into discussion of the various effects, on the morality of nations, of more or less frank showing of the nude form. There is no question that if shown at all, it should be shown fearlessly, and seen constantly ; but I do not care, at present, to debate the question : neither will I delay you by any expression of my reasons for the rule I am about to give. Trust me, I have many ;—and I can assert to you as a positive and perpetual law, that so much of the nude body as in the daily life of the nation may be shown with modesty, and seen with reverence and delight,—so much, and no more, ought to be shown by the national arts, either of painting or sculpture. What, more than this, either art exhibits, will, assuredly, pervert taste, and, in all probability, morals.

165. It will, assuredly, pervert taste, in this essential point, that the polite ranks of the nation will come to think the *living* creature and its dress exempt from the highest laws of taste ; and that while a man or woman must, indeed, be seen dressed or undressed with dignity, in marble, they may be dressed or undressed, if not with *in*dignity, at least, with less than dignity, in the ball-room, and the street. Now the law of all living art is that the living man and woman must be more beautiful than their pictures, and their pictures as decorous as the living man or woman ; and that real dress, and gesture, and behaviour, should be more graceful than any marble or colour can effect similitude of.

166. Thus the idea of a different dress in art and reality, of which that of art is to be the ideal one, perverts taste in dress ; and the study of the nude which is rarely seen, as much perverts taste in art.

Of all pieces of art that I know, skilful in execution, and not criminal in intention ;—without any exception, quite the

most vulgar, and in the solemn sense of the word, most abominable, are the life studies which are said to be the best made in modern times,—those of Mulready, exhibited as models in the Kensington Museum.

167. How far the study of the seldom-seen nude leads to perversion of morals, I will not, to-day, inquire; but I beg you to observe that even among the people where it was most frank and pure, it unquestionably led to evil far greater than any good which demonstrably can be traced to it. Scarcely any of the moral power of Greece depended on her admiration of beauty, or strength in the body. The power of Greece depended on practice in military exercise, involving severe and continual ascetic discipline of the senses; on a perfect code of military heroism and patriotic honour; on the desire to live by the laws of an admittedly divine justice; and on the vivid conception of the presence of spiritual beings. The mere admiration of physical beauty in the body, and the arts which sought its expression, not only conduced greatly to the fall of Greece, but were the cause of errors and crimes in her greatest time, which must for ever sadden our happiest thoughts of her, and have rendered her example almost useless to the future.

168. I have named four causes of her power: discipline of senses; romantic ideal of heroic honour; respect for justice; and belief in God. There was a fifth—the most precious of all—the belief in the purity and force of life in man; and that true reverence for domestic affection, which, in the strangest way, being the essential strength of every nation under the sun, has yet been lost sight of as the chief element of Greek virtue, though the Iliad itself is nothing but the story of the punishment of the rape of Helen; and though every Greek hero called himself chiefly by his parental name,—Tydides, rather than Diomed;—Pelides, rather than Achilles.

Among the new knowledges which the modern sirens tempt you to pursue, the basest and darkest is the endeavour to trace the origin of life, otherwise than in Love. Pardon me, therefore, if I give you a piece of theology to-day: it is a science much closer to your art than anatomy.

169. All of you who have ever read your Gospels carefully must have wondered, sometimes, what could be the meaning of those words,—"If any speak against the Son of Man it shall be forgiven; but if against the Holy Spirit, it shall not be forgiven, neither in this world nor in the next."

The passage may have many meanings which I do not know; but one meaning I know positively, and I tell you so just as frankly as I would that I knew the meaning of a verse in Homer.

Those of you who still go to chapel say every day your creed; and, I suppose, too often, less and less every day believing it. Now, you may cease to believe two articles of it, and,—admitting Christianity to be true,—still be forgiven. But I can tell you—you must *not* cease to believe the third!

You begin by saying that you believe in an Almighty Father. Well, you may entirely lose the sense of that Fatherhood, and yet be forgiven.

You go on to say that you believe in a Saviour Son. You may entirely lose the sense of that Sonship, and yet be forgiven.

But the third article—disbelieve if you dare!

"I believe in the Holy Ghost, *The Lord and Giver of Life.*"

Disbelieve that! and your own being is degraded into the state of dust driven by the wind; and the elements of dissolution have entered your very heart and soul.

All Nature, with one voice—with one glory, is set to teach you reverence for the life communicated to you from the Father of Spirits. The song of birds, and their plumage; the scent of flowers, their colour, their very existence, are in direct connection with the mystery of that communicated life: and all the strength, and all the arts of men, are measured by, and founded upon, their reverence for the passion, and their guardianship of the purity, of Love.

170. Gentlemen,—the word by which I at this moment address you—by which it is the first of all your duties through life, to permit all men to address you with truth—that epithet of 'gentle,' as you well know, indicates the intense respect for race and fatherhood,—for family dignity and chastity,—which was visibly the strength of Rome, as it had been, more

disguisedly, the strength of Greece. But have you enough noticed that your Saxon word 'kindness' has exactly the same relation to 'kin,' and to the Chaucerian 'kinde,' that 'gentle' has to 'gentilis'?

Think out that matter a little, and you will find that—much as it looks like it—neither chemistry, nor anatomy, nor republicanism, are going to have it all their own way—in the making of either beasts, or gentlemen. They look sometimes, indeed, as if they had got as far as two of the Mosaic plagues, and manufactured frogs in the ditches, and lice on the land; but their highest boasters will not claim, yet, so much even as that poor victory.

171. My friends, let me very strongly recommend you to give up that hope of finding the principle of life in dead bodies; but to take all pains to keep the life pure and holy in the living bodies you have got; and, farther, not to seek your national amusement in the destruction of animals, nor your national safety in the destruction of men; but to look for all your joy to kindness, and for all your strength to domestic faith, and law of ancestral honour. Perhaps you will not now any more think it strange that in beginning your natural history studies in this place, I mean to teach you heraldry, but not anatomy. For, as you learn to read the shields, and remember the stories, of the great houses of England, and find how all the arts that glorified them were founded on the passions that inspired, you will learn assuredly, that the utmost secret of national power is in living with honour, and the utmost secrets of human art are in gentleness and truth.

LECTURE IX.

THE STORY OF THE HALCYON.

March 7th, 1872.

172. I MUST to-day briefly recapitulate the purport of the preceding lectures, as we are about now to enter on a new branch of our subject.

I stated, in the first two, that the wisdom of art and the wisdom of science consisted in their being each devoted unselfishly to the service of men: in the third, that art was only the shadow of our knowledge of facts; and that the reality was always to be acknowledged as more beautiful than the shadow. In the fourth lecture I endeavoured to show that the wise modesty of art and science lay in attaching due value to the power and knowledge of other people, when greater than our own; and in the fifth, that the wise self-sufficiency of art and science lay in a proper enjoyment of our own knowledge and power, after it was thus modestly esteemed. The sixth lecture stated that sight was a distinctly spiritual power, and that its kindness or tenderness was proportioned to its clearness. Lastly, in the seventh and eighth lectures, I asserted that this spiritual sight, concerned with external aspects of things, was the source of all necessary knowledge in art; and that the artist has no concern with invisible structures, organic or inorganic.

173. No concern with invisible structures. But much with invisible things; with passion, and with historical association. And in these two closing lectures, I hope partly to justify myself for pressing on your attention some matters as little hitherto thought of in drawing-schools, as the exact sciences have been highly, and, I believe, unjustly, esteemed; —mythology, namely, and heraldry.

I can but in part justify myself now. Your experience of the interest which may be found in these two despised sciences will be my best justification. But to-day (as we are about to begin our exercises in bird-drawing) I think it may interest you to review some of the fables connected with the natural history of a single bird, and to consider what effect the knowledge of such tradition is likely to have on our mode of regarding the animated creation in general.

174. Let us first take an instance of the feeling towards birds which is especially characteristic of the English temper at this day, in its entire freedom from superstition.

You will find in your Rudimentary Series (225), Mr. Gould's plate of the lesser Egret,—the most beautiful, I sup-

pose, of all birds that visit, or, at least, once visited, our English shores. Perfectly delicate in form, snow-white in plumage, the feathers like frost-work of dead silver, exquisitely slender, separating in the wind like the streams of a fountain, the creature looks a living cloud rather than a bird.

It may be seen often enough in South France and Italy. The last (or last but one ?) known of in England came thirty years ago, and this was its reception, as related by the present happy possessor of its feathers and bones :—

"The little Egret in my possession is a most beautiful specimen ; it was killed by a labourer with a stick, in Ake Carr, near Beverly, about 1840, and was brought to me, tied up in a pocket-handkerchief, covered with black wet mud and blood, in which state it was sent to Mr. Reed, of Doncaster, and restored by him in a most marvellous manner."

175. Now, you will feel at once that, while the peasant was beating this bird into a piece of bloody flesh with his stick, he could not, in any true sense, see the bird ; that he had no pleasure either in the sight of that, or of anything near it.

You feel that he would become capable of seeing it in exact proportion to his desire not to kill it ; but to watch it in its life.

Well, that is a quite general law : in the degree in which you delight in the life of any creature, you can see it ; no otherwise.

And you would feel, would you not, that if you could enable the peasant rightly to see the bird, you had in great part educated him ?

176. You would certainly have gone, at least, the third of the way towards educating him. Then the next thing to be contrived would be that he should be able to see a man rightly, as well as a bird ; to understand and love what was good in a man, so that, supposing his master was a good man, the sight of his master should be a joy to him. You would say that he was therein better educated than if he wanted to put a gun through a hedge and shoot his master.

Then the last part of education will be—whatever is meant by that beatitude of the pure in heart—seeing God rightly, of which I shall not speak to-day.

177. And in all these phases of education, the main point, you observe, is that it *should* be a beatitude: and that a man should learn "χαίρειν ορθῶς:" and this rejoicing is above all things to be in actual sight; you have the truth exactly in the saying of Dante when he is brought before Beatrice, in heaven, that his eyes "satisfied themselves for their ten years' thirst."

This, then, I repeat, is the sum of education. All literature, art, and science are vain, and worse, if they do not enable you to be glad; and glad justly.

And I feel it distinctly my duty, though with solemn and true deference to the masters of education in this university, to say that I believe our modern methods of teaching, and especially the institution of severe and frequent examination, to be absolutely opposed to this great end; and that the result of competitive labour in youth is infallibly to make men know all they learn wrongly, and hate the habit of learning; so that instead of coming to Oxford to rejoice in their work, men look forward to the years they are to pass under her teaching as a deadly agony, from which they are fain to escape, and sometimes for their life, *must* escape, into any method of sanitary frivolity.

178. I go back to my peasant and his egret. You all think with some horror of this man, beating the bird to death, as a brutal person. He is so; but how far are we English gentlemen, as a body, raised above him? We are more delicately nurtured, and shrink from the notion of bruising the creature and spoiling its feathers. That is so far right, and well. But in all probability this countryman, rude and cruel though he might be, had some other object in the rest of his day than the killing of birds. And very earnestly I ask you, have English gentlemen, as a class, any other real object in their whole existence than killing birds? If they discern a duty, they will indeed do it to the death; but have the English aristocracy at this moment any clear notion of their duty? I believe solemnly, and without jest, their idea of their caste is that its life should be, distinctively from inferior human lives spent in shooting.

And that is not an idea of caste with which England, at this epoch, can any longer be governed.

179. I have no time to-day to push my argument farther; but I have said enough, I think, to induce you to bear with me in the statement of my main theorem—that reading and writing are in no sense education, unless they contribute to this end of making us feel kindly towards all creatures; but that drawing, and especially physiologic drawing, is vital education of a most precious kind. Farther, that more good would be done by any English nobleman who would keep his estate lovely in its native wildness; and let every animal live upon it in peace that chose to come there, than will be done, as matters are going now, by the talk of all the Lords in Parliament, as long as we live to listen to them; and, I will even venture to tell you my hope, though I shall be dead long before its possible fulfilment, that one day the English people will, indeed, so far recognize what education means as to surround this university with the loveliest park in England, twenty miles square; that they will forbid, in that environment, every unclean, mechanical, and vulgar trade and manufacture, as any man would forbid them in his own garden;—that they will abolish every base and ugly building, and nest of vice and misery, as they would cast out a devil;—that the streams of the Isis and Cherwell will be kept pure and quiet among their fields and trees; and that, within this park, every English wild flower that can bloom in lowland will be suffered to grow in luxuriance, and every living creature that haunts wood and stream know that it has happy refuge.

And now to our immediate work.

180. The natural history of anything, or of any creature, divides itself properly into three branches.

We have first to collect and examine the traditions respecting the thing, so that we may know what the effect of its existence has hitherto been on the minds of men, and may have at our command what data exist to help us in our own inquiries about it, or to guide us in our own thoughts of it.

We have secondly to examine and describe the thing, or

creature, in its actual state, with utmost attainable veracity of observation.

Lastly, we have to examine under what laws of chemistry and physics the matter of which the thing is made has been collected and constructed.

Thus we have first to know the poetry of it—*i. e.*, what it has been to man, or what man has made of it.

Secondly, the actual facts of its existence.

Thirdly, the physical causes of these facts, if we can discover them.

181. Now, it is customary, and may be generally advisable, to confine the term 'natural history' to the last two branches of knowledge only. I do not care what we call the first branch; but, in the accounts of animals that I prepare for my schools at Oxford, the main point with me will be the mythology of them; the second, their actual state and aspect, (second, this, because almost always hitherto only half known); and the anatomy and chemistry of their bodies, I shall very rarely, and partially, as I told you, examine at all: but I shall take the greatest pains to get at the creature's habits of life; and know all its ingenuities, humours, delights, and intellectual powers. That is to say, what art it has, and what affection; and how these are prepared for in its external form.

182. I say, deliberately and energetically, 'prepared for,' in opposition to the idea, too prevalent in modern philosophy, of the form's being fortuitously developed by repetition of impulse. It is of course true that the aspects and characters of stones, flowers, birds, beasts, and men, are inseparably connected with the conditions under which they are appointed to have existence; but the method of this connection is infinitely varied; so far from fortuitous, it appears grotesquely, often terrifically, arbitrary; and neither stone, flower, beast, nor man can understand any single reason of the arbitrament, or comprehend why its Creator made it thus.

183. To take the simplest of instances,—which happens also to be one of the most important to you as artists,—it is appointed that vertebrated animals shall have no more than four legs, and that, if they require to fly, the two legs in front

must become wings, it being against law that they should have more than these four members in ramification from the spine.

Can any law be conceived more arbitrary, or more apparently causeless? What strongly planted three-legged animals there might have been! what symmetrically radiant five-legged ones! what volatile six-winged ones! what circumspect seven-headed ones! Had Darwinism been true, we should long ago have split our heads in two with foolish thinking, or thrust out, from above our covetous hearts, a hundred desirous arms and clutching hands; and changed ourselves into Briarean Cephalopoda. But the law is around us, and within; unconquerable; granting, up to a certain limit, power over our bodies to circumstance and will: beyond that limit, inviolable, inscrutable, and, so far as we know, eternal.

184. For every lower animal, similar laws are established; under the grasp of these it is capable of change, invisibly permitted oscillation between certain points; beyond which, according to present experience, it cannot pass. The adaptation of the instruments it possesses in its members to the conditions of its life is always direct, and occasionally beautiful; but in the plurality of instances, partial, and involving painful supplementary effort. Some animals have to dig with their noses, some to build with their tails, some to spin with their stomachs: their dexterities are usually few—their awkwardnesses numberless;—a lion is continually puzzled how to hold a bone; and an eagle can scarcely pull the meat off one, without upsetting himself.

185. Respecting the origin of these variously awkward, imperfectly, or grotesquely developed phases of form and power, you need not at present inquire: in all probability the race of man is appointed to live in wonder, and in acknowledgment of ignorance; but if ever he is to know any of the secrets of his own or of brutal existence, it will surely be through discipline of virtue, not through inquisitiveness of science. I have just used the expression, "had Darwinism been true," implying its fallacy more positively than is justifiable in the present state of our knowledge; but very posi-

tively I can say to you that I have never heard yet one logical argument in its favour, and I have heard, and read, many that were beneath contempt. For instance, by the time you have copied one or two of your exercises on the feather of the halcyon, you will be more interested in the construction and disposition of plume-filaments than heretofore; and you may perhaps, refer, in hope of help, to Mr. Darwin's account of the peacock's feather. I went to it myself, hoping to learn some of the existing laws of life which regulate the local disposition of the colour. But none of these appear to be known; and I am informed only that peacocks have grown to be peacocks out of brown pheasants, because the young feminine brown pheasants like fine feathers. Whereupon I say to myself, "Then either there was a distinct species of brown pheasants originally born with a taste for fine feathers; and therefore with remarkable eyes in their heads,—which would be a much more wonderful distinction of species than being born with remarkable eyes in their tails,—or else all pheasants would have been peacocks by this time!" And I trouble myself no more about the Darwinian theory.

When you have drawn some of the actual patterns of plume and scale with attention, I believe you will see reason to think that spectra of organic species may be at least as distinct as those of metals or gases; but learn at all events what they are now, and never mind what they have been.

186. Nor need you care for methods of classification any more than for the origin of classes. Leave the physiologists to invent names, and dispute over them; your business is to know the creature, not the name of it momentarily fashionable in scientific circles. What practical service you can get from the order at present adopted, take, without contention; and as far as possible, use English words, or be sure you understand the Latin ones.

187. For instance, the order at present adopted in arranging the species of birds is, as you know, founded only on their ways of using their feet.

Some catch or snatch their prey, and are called "Snatchers"—RAPTORES.

Some perch on branches, and are called "In-sitters," or Upon-sitters—INSESSORES.

Some climb and cling on branches, and are called Climbers —SCANSORES.

Some scratch the ground, and are called "Scratchers"—RASORES.

Some stand or wade in shallow water, and, having long legs, are called "Stilt-walkers"—GRALLATORES.

Some float, and make oars of their feet, and are called "Swimmers"—NATATORES.

188. This classification is unscholarly, because there are many snatchers and scratchers who perch as well as the sitters; and many of the swimmers sit, when ashore, more neatly than the sitters themselves; and are most grave insessors, in long rows, on rock or sand: also, 'insessor' does not mean properly a sitter, but a besieger; and it is awkward to call a bird a 'Rasor.' Still, the use of the feet is on the whole characteristic, and convenient for first rough arrangement; only, in general reference, it will be better to use plain English words than those stiff Latin ones, or their ugly translations. Linnæus, for all his classes except the stilt-walkers, used the name of the particular birds which were the best types of their class; he called the snatchers "hawks" (Accipitres), the swimmers, geese, (Anseres), the scratchers, fowls, (Gallinae), and the perchers, sparrows, (Passeres). He has no class of climbers; but he has one since omitted by Cuvier, "pies," which, for certain mythological reasons presently to be noted, I will ask you to keep. This will give you seven orders, altogether, to be remembered; and for each of these we will take the name of its most representative bird. The hawk has best right undoubtedly to stand for the snatchers; we will have his adversary, the heron, for the stilt-walkers; you will find this very advisable, no less than convenient; because some of the beaks of the stilt-walkers turn down, and some turn up; but the heron's is straight, and so he stands well as a pure middle type. Then, certainly, gulls will better represent the swimmers than geese; and pheasants are a prettier kind of scratchers than fowls. We will take parrots

for the climbers, magpies for the pies, and sparrows for the perchers. Then take them in this order: Hawks, parrots, pies, sparrows, pheasants, gulls, herons; and you can then easily remember them. For you have the hawks at one end, the herons at the other, and sparrows in the middle, with pies on one side and pheasants opposite, for which arrangement you will find there is good reason; then the parrots necessarily go beside the hawks, and the gulls beside the herons.

189. The bird whose mythic history I am about to read to you belongs essentially and characteristically to that order of pies, picae, or painted birds, which the Greeks continually opposed in their thoughts and traditions to the singing birds, representing the one by the magpie, and the other by the nightingale. The myth of Autolycus and Philammon, and Pindar's exquisite story of the infidelity of Coronis, are the centres of almost countless traditions, all full of meaning, dependent on the various ποικιλία, to eye and ear, of these opposed races of birds. The Greek idea of the Halcyon united both these sources of delight. I will read you what notices of it I find most interesting, not in order of date, but of brevity; the simplest first.

190. "And the King of Trachis, the child of the Morning Star, married Alcyone. And they perished, both of them, through their pride; for the king called his wife, Hera; and she her husband, Zeus: but Zeus made birds of them (αὐτοὺς ἀπωρνέωσε), and he made the one a Halcyon, and the other a a Sea-mew."—*Apollodorus*, i. 7, 4.

"When the King of Trachis, the son of Hesperus, or of Lucifer, and Philonis, perished in shipwreck, his wife Alcyone, the daughter of Æolus and Ægiale, for love of him, threw herself into the sea;—who both, by the mercy of the gods, were turned into the birds called Halcyons. These birds, in the winter-time, build their nests, and lay their eggs, and hatch their young on the sea; and the sea is quiet in those days, which the sailors call the Halcyonia."—*Hyginus*, *Fab.* LXV.

191. "Now the King of Trachis, the son of Lucifer, had to wife Halcyone. And he, wishing to consult the oracle of Apollo concerning the state of his kingdom, was forbidden to

go, by Halcyone, nevertheless he went ; and perished by shipwreck. And when his body was brought to his wife Halcyone, she threw herself into the sea. Afterwards, by the mercy of Thetis and Lucifer, they were both turned into the sea-birds called Halcyons. And you ought to know that Halcyone is the woman's name, and is always a feminine noun ; but the bird's name is Halcyon, masculine and feminine, and so also its plural, Halcyones. Also those birds make their nests in the sea, in the middle of winter ; in which days the calm is so deep that hardly anything in the sea can be moved. Thence, also, the days themselves are called Halcyonia."—*Servius, in Virg. Georg.* i. 399.

192. "And the pairing of birds, as I said, is for the most part in spring time, and early summer ; except the halcyon's. For the halcyon has its young about the turn of days in winter, wherefore, when those days are fine, they are called 'Halcyonine' (ἀλκυόνειοι) ; seven, indeed, before the turn, and seven after it, as Simonides poetized, (ἐποίησεν).

> 'As, when in the wintry month
> Zeus gives the wisdom of calm to fourteen days,
> Then the people of the land call it
> The hour of wind-hiding, the sacred
> Nurse of the spotted Halcyon.'

"And in the first seven days the halcyon is said to lay her eggs, and in the latter seven to bring forth and nourish her young. Here, indeed, in the seas of Greece, it does not always chance that the Halcyonid days are at the solstice ; but in the Sicilian sea, almost always. But the æthuia and the laros bring forth their young, (two, or three) among the rocks by the sea-shore ; but the laros in summer, the æthuia in first spring, just after the turn of days ; and they sit on them as other birds do. And none of these birds lie torpid in holes during the winter ; but the halcyon is, of all, seen the seldomest, for it is seen scarcely at all, except just at the setting and turn of Pleias, and then it will but show itself once and away ; flying, perhaps, once round a ship at anchor, and then it is gone instantly."—*Aristotle, Hist. An.*, v. 8, 9.

193. "Now we are ready enough to extol the bee for a wise

creature, and to consent to the laws by which it cares for the yellow honey, because we adore the pleasantness and tickling to our palates that is in the sweetness of that; but we take no notice of the wisdom and art of other creatures in bringing up their young, as for instance, the halcyon, who as soon as she has conceived, makes her nest by gathering the thorns of the sea-needle-fish; and, weaving these in and out, and joining them together at the ends, she finishes her nest; round in the plan of it, and long, in the proportion of a fisherman's net; and then she puts it where it will be beaten by the waves, until the rough surface is all fastened together and made close. And it becomes so hard that a blow with iron or stone will not easily divide it; but, what is more wonderful still, is that the opening of the nest is made so exactly to the size and measure of the halcyon that nothing larger can get into it, and nothing smaller!—so they say;—"no, not even the sea itself, even the least drop of it."—*Plutarch: De Amore Prolis.*

I have kept to the last Lucian's dialogue, "the Halcyon," to show you how the tone of Christian thought, and tradition of Christ's walking on the sea, began to steal into heathen literature.

SOCRATES—CHAEREPHON.

194. "*Chaerephon.* What cry is that, Socrates, which came to us from the beach; how sweet it was; what can it be? the things that live in the sea are all mute.

"*Socrates.* Yet it is a sea-creature, Chaerephon; the bird called Halcyon, concerning which the old fable runs that she was the daughter of Æolus, and, mourning in her youth for her lost husband, was winged, by divine power, and now flies over the sea, seeking him whom she could not find, sought throughout the earth.

"*Chaerephon.* And is that indeed the Halcyon's cry? I never heard it yet; and in truth it is very pitiful. How large is the bird, Socrates?

"*Socrates.* Not great; but it has received great honour from the Gods, because of its lovingness; for while it is making its nest, all the world has the happy days which it calls

halcyonidæ, excelling all others in their calmness, though in the midst of storm ; of which you see this very day is one, if ever there was. Look how clear the sky is, and the sea waveless and calm, like a mirror !

" *Chaerephon.* You say truly, and yesterday was just such another. But in the name of the Gods, Socrates, how is one to believe those old sayings, that birds were ever changed into women, or women into birds, for nothing could seem more impossible ?

195. " *Socrates.* Ah, dear Chaerephon, it is likely that we are poor and blunt judges of what is possible and not : for we judge by comparing to human power a power unknown to us, unimaginable, and unseen. Many things, therefore, that are easy, seem to us difficult ; and many things unattainable that may be attained ; being thus thought of, some through the inexperience, and some through the infantine folly, of our minds. For in very deed every man may be thought of as a child—even the oldest of us,—since the full time of life is little, and as a baby's, compared to universal time. And what should we have to say, my good friend, who know nothing of the power of gods or of the spirits of Nature, whether any of such things are possible or not ? You saw, Chaerephon, what a storm there was, the day before yesterday ; it makes one tremble even to think of it again ;—that lightning, and thunder, and sudden tempest, so great that one would have thought all the earth falling to ruin ; and yet, in a little while, came the wonderful establishing of calm, which has remained even till now. Whether, then, do you think it the greater work to bring such a calm out of that tormenting whirlwind, and reduce the universe to peace, or to change the form of a woman into that of a bird ? For indeed we see how very little children, who know how to knead clay, do something like this also ; often out of one lump they will make form after form, of different natures : and surely to the spirit-powers of Nature, being in vast and inconjecturable excess beyond ours, all such things must be in their hands easy. Or how much do you think heaven greater than thyself—can you say, perchance ?

"*Chaerephon.* Who of men, O Socrates, could imagine or name any of these things?

196. "*Socrates.* Nay; do we not see also, in comparing man with man, strange differences in their powers and imbecilities: for complete manhood, compared with utter infancy, as of a child five or ten days old, has difference in power, which we may well call miraculous: and when we see man excel man so far, what shall we say that the strength of the whole heaven must appear, against ours, to those who can see them together, so as to compare them? Also, to you and me, and to many like us, sundry things are impossible that are easy to other people; as singing to those ignorant of music, and reading or writing to those ignorant of letters;—more impossible than to make women birds, or birds of women. For Nature, as with chance throw, and rough parable, making the form of a footless and wingless beast in changeable matter; then putting on feet and wings, and making it glitter all over with fair variegation and manifold colour, at last brings out, for instance, the wise bee, maker of the divine honey; and out of the voiceless and spiritless egg she brings many kinds of flying and foot-going and swimming creatures, using besides (as runs the old Logos), the sacred art of the great Aether.* We then, being altogether mortal and mean, and neither able to see clearly great things nor small, and, for the most part being unable to help ourselves even in our own calamities,—what can we have to say about the powers of the immortals, either over halcyons or nightingales? But the fame of fable such as our fathers gave it to us, this, to my children, O thou bird singing of sorrow, I will deliver concerning thy hymns: and I myself will sing often of this religious and human love of thine, and of the honour thou hast for it from the Gods. Wilt not thou do likewise, O Chaerephon?

"*Chaerephon.* It is rightly due indeed, O Socrates, for there is two-fold comfort in this, both for men and women, in their relations with each other.

"*Socrates.* Shall we not then salute the halcyon, and so go back to the city by the sands, for it is time.

* Note this sentence respecting the power of the creative Athena.

"*Chaerephon.* Indeed let us do so."

197. The note of the scholiast on this dialogue is the only passage in which I can find any approximately clear description of the Greek halcyon. It is about as large, he says, as a small sparrow: (the question how large a Greek sparrow was we must for the present allow to remain open;) and it is mixed of green and blue, with gleaming of purple above, and it has a slender and long beak: the beak is said to be "chloros," which I venture to translate "green," when it is used of the feathers, but it may mean anything, used of the beak. Then follows the same account as other people's, of the nest-building, except that the nest is compared in shape to a medicinal gourd. And then the writer goes on to say that there are two species of halcyons—one larger than the other, and silent, but the smaller, fond of singing (ᾠδικὴ); and that the females of these are so true to their mates that, when the latter grow old, the female bird flies underneath them, and carries them wherever they would like to go; and after they die will not eat nor drink anything, and so dies too. "And there is a certain kind of them, of which, if any one hear the voice, it is an altogether true sign to him that he will die in a short time."

198. You will, I think, forgive me, if, after reading to you these lovely fables, I do not distract you, or detain, with the difficult investigation of the degree in which they are founded on the not yet sufficiently known facts of the Kingfisher's life.

I would much rather that you should remain impressed with the effect which the lovely colour and fitful appearance of the bird have had on the imagination of men. I may satisfy you by the assurance that the halcyon of England is also the commonest halcyon of Greece and of Palestine; and I may at once prove to you the real gain of being acquainted with the traditions of it, by reading to you two stanzas, certainly among the most familiar to your ears in the whole range of English poetry: yet which, I am well assured, will sound, after what we have been reflecting upon to-day, almost as if they were new to you. Note especially how Milton's knowledge that Halcyon was the daughter of the Winds, and Ceyx the son of

the Morning Star, affects the course of his thought in the successive stanzas—

"But peaceful was the night,
Wherein the Prince of light
His reign of peace upon the earth began:
The winds with wonder whist,
Smoothly the waters kist,
Whispering new joys to the mild ocean,
Who now hath quite forgot to rave,
While birds of calm sit brooding on the charmed wave.

"The stars, with deep amaze,
Stand fix'd in steadfast gaze,
Bending one way their precious influence;
And will not take their flight,
For all the morning light
Of Lucifer, that often warn'd them thence;
But in their glimmering orbs did glow,
Until their Lord himself bespake, and bid them go."

199. I should also only weary you if I attempted to give you any interpretation of the much-entangled web of Greek fables connected with the story of Halcyone. You observe that in all these passages I have said "King of Trachis" instead of Ceyx. That is partly because I don't know how to pronounce Ceyx, either in Greek or English: but it is chiefly to make you observe that this story of the sea-mew and Halcyon, now known through all the world like the sea-mew's cry, has its origin in the "Rough country," or crag-country, under Mount Œta, made sacred to the Greek mind by the death of Heracles; and observe what strange connection that death has with the Halcyon's story. Heracles goes to this "Rough country" to seek for rest; all the waves and billows of his life having—as he thinks now—gone over him. But he finds death.

As far as I can form any idea of this "rough, or torn, country" from the descriptions of Colonel Leake or any other traveller, it must resemble closely the limestone cliffs just above Altorf, which break down to the valley from the ridge of the Windgelle, and give source at their foot, to faultlessly clear streams,—green-blue among the grass.

You will find Pausanias noting the springs of Thermopylæ as of the bluest water he ever saw; and if you fancy the Lake Lucerne to be the sea bay running inland from Artemisium, you will have a clear and useful, nor in any serious way, inaccurate, image of the scene where the Greeks thought their best hero should die. You may remember also, with advantage, that Morgarten—the Thermopylæ of Switzerland—lies by the little lake of Egeri, not ten miles from this bay of Altorf; and that the Heracles of Switzerland is born under those Trachinian crags.

If, farther, you remember that the Halcyon would actually be seen flitting above the blue water of the springs, like one of their waves caught up and lighted by the sun; and the sea-mews haunting the cliffs, you will see how physical circumstances modify the under-tone of the words of every mythic tradition.

I cannot express to you how strange—how more and more strange every day—it seems to me, that I cannot find a single drawing, nor definite account, of scenes so memorable as this, to point you to; but must guess and piece their image together for you as best I can from their Swiss similitudes. No English gentleman can pass through public school-life without knowing his Trachiniæ; yet, I believe, literally, we could give better account of the forms of the mountains in the moon, than we could of Œta. And what has art done to help us? How many Skiddaws or Benvenues, for one Œta, —if one! And when the English gentleman becomes an art-patron, he employs his painter-servant only to paint himself and his house; and when Turner was striving, in his youth, to enforce the mythology, and picture these very scenes in Greece, and putting his whole strength into the endeavour to conceive them, the noble pictures remained in his gallery;—and for bread, he had to paint —— Hall, the seat of ——, Esquire, with the carriage drive, the summer-house, and the squire going out hunting.

If, indeed, the squire would make his seat worth painting, and would stay there, and would make the seats, or, shall we call them, forms, of his peasantry, worth painting too, he would be interpreting the fable of the Halcyon to purpose.

But you must, at once, and without any interpreter, feel for yourselves how much is implied in those wonderful words of Simonides—written six hundred years before Christ;—"when in the wild winter months, Zeus gives the *wisdom of calm;*" and how much teaching there is for us in this imagination of past days,—this dream-picture of what is true in days that are, and are to come,—that perfect domestic love not only makes its nest upon the waves, but that the waves will be calm that it may.

200. True, I repeat, for all ages, and all people, that, indeed, are desirous of peace, and loving in trouble! But what fable shall we invent, what creature on earth or sea shall we find, to symbolize this state of ours in modern England? To what sorrowful birds shall *we* be likened, who make the principal object of our lives dispeace, and unrest; and turn our wives and daughters out of their nests, to work for themselves?

Nay, strictly speaking, we have not even got so much as nests to turn them out of. I was infinitely struck, only the other day, by the saying of a large landed proprietor (a good man, who was doing all he could for his tenantry, and building new cottages for them), that the best he *could* do for them, under present conditions of wages, and the like, was, to give them good drainage and bare walls.

"I am obliged," he said to me, "to give up all thought of anything artistic, and even then, I must lose a considerable sum on every cottage I build."

201. Now, there is no end to the confused states of wrong and misery which that landlord's experience signifies. In the first place, no landlord has any business with building cottages for his people. Every peasant should be able to build his own cottage,—to build it to his mind; and to have a mind to build it to. In the second place, note the unhappy notion which has grown up in the modern English mind, that wholesome and necessary delight in what is pleasant to the eye, is artistic affectation. You have the exponent of it all in the central and mighty affectation of the Houses of Parliament. A number of English gentlemen get together to talk: they

have no delight whatever in any kind of beauty; but they have a vague notion that the appointed place for their conversation should be dignified and ornamental; and they build over their combined heads the absurdest and emptiest piece of filigree,—and, as it were, eternal foolscap in freestone,—which ever human beings disgraced their posterity by. Well, all that is done, partly, and greatly, in mere jobbery; but essentially also in a servile imitation of the Hôtel-de-Ville builders of old time; but the English gentleman has not the remotest idea that when Hôtel-de-Villes were built, the ville enjoyed its hotel;—the town had a real pride in its town hall, and place of council, and the sculptures of it had precious meaning for all the populace.

202. And in like manner, if cottages are ever to be wisely built again, the peasant must enjoy his cottage, and be himself its artist, as a bird is. Shall cock-robins and yellowhammers have wit enough to make themselves comfortable, and bullfinches peck a Gothic tracery out of dead clematis,—and your English yeoman be fitted by his landlord with four dead walls and a drain-pipe? That is the result of your spending 300,000*l.* a year at Kensington in science and art, then? You have made beautiful machines, too, wherewith you save the peasant the trouble of ploughing and reaping, and threshing; and, after being saved all that time and toil, and getting, one would think, leisure enough for his education, you have to lodge him also, as you drop a puppet into a deal box, and you lose money in doing it! and, two hundred years ago, without steam, without electricity, almost without books, and altogether without help from *Cassell's Educator* or the morning newspapers, the Swiss shepherd could build himself a châlet, daintily carved, and with flourished inscriptions, and with red and blue and white ποικιλία; and the burgess of Strasburg could build himself a house like this I showed you, and a spire such as all men know; and keep a precious book or two in his public library, and praise God for all: while we,—what are *we* good for, but to damage the spire, knock down half the houses, and burn the library,—and declare there is no God but Chemistry?

203. What *are* we good for? Are even our machines of destruction useful to us? Do they give us real power? Once, indeed, not like halcyons, but like sea-eagles, we had our homes upon the sea; fearless alike of storm or enemy, winged like the wave petrel; and as Arabs of an indeed pathless desert, we dwelt in the presence of all our brethren. Our pride is fallen; no reed shaken with the wind, near the little singing halcyon's nest, is more tremulous than we are now; though we have built iron nests on the sea, with walls impregnable. We have lost our pride—but have we gained peace? Do we even care to seek it, how much less strive to make it?

204. Have you ever thought seriously of the meaning of that blessing given to the peacemakers? People are always expecting to get peace in heaven; but you know whatever peace they get there will be ready-made. Whatever making of peace *they* can be blest for, must be on the earth here: not the taking of arms against, but the building of nests amidst, its "sea of troubles." Difficult enough, you think? Perhaps so, but I do not see that any of us try. We complain of the want of many things—we want votes, we want liberty, we want amusement, we want money. Which of us feels, or knows, that he wants peace?

205. There are two ways of getting it, if you do want it. The first is wholly in your own power; to make yourselves nests of pleasant thoughts. Those are nests on the sea indeed, but safe beyond all others; only they need much art in the building. None of us yet know, for none of us have yet been taught in early youth, what fairy palaces we may build of beautiful thought—proof against all adversity. Bright fancies, satisfied memories, noble histories, faithful sayings, treasure-houses of precious and restful thoughts, which care cannot disturb, nor pain make gloomy, nor poverty take away from us—houses built without hands, for our souls to live in.

206. And in actual life, let me assure you, in conclusion, the first 'wisdom of calm,' is to plan, and resolve to labour for, the comfort and beauty of a home such as, if we could obtain it, we would quit no more. Not a compartment of a model lodging-house, not the number so-and-so of Paradise

Row; but a cottage all of our own, with its little garden, its pleasant view, its surrounding fields, its neighbouring stream, its healthy air, and clean kitchen, parlours, and bedrooms. Less than this, no man should be content with for his nest; more than this few should seek: but if it seem to you impossible, or wildly imaginary, that such houses should ever be obtained for the greater part of the English people, again believe me, the obstacles which are in the way of our obtaining them are the things which it must be the main object now of all true science, true art, and true literature to overcome. Science does its duty, not in telling us the causes of spots in the sun; but in explaining to us the laws of our own life, and the consequences of their violation. Art does its duty, not in filling monster galleries with frivolous, or dreadful, or indecent pictures; but in completing the comforts and refining the pleasures of daily occurrence, and familiar service: and literature does its duty, not in wasting our hours in political discussion, or in idle fiction; but in raising our fancy to the height of what may be noble, honest, and felicitous in actual life;—in giving us, though we may ourselves be poor and unknown, the companionship of the wisest fellow-spirits of every age and country,—and in aiding the communication of clear thoughts and faithful purposes, among distant nations, which will at last breathe calm upon the sea of lawless passion, and change into such halcyon days the winter of the world, that the birds of the air may have their nests in peace, and the Son of Man, where to lay his head.

LECTURE X.

THE HERALDIC ORDINARIES.

March 9th, 1872.

207. In my last lecture, I endeavoured to illustrate you the use of art to the science of physiology. I am to-day to introduce to you its elementary forms as an exponent of the science of history. Which, speaking with perfect accuracy, we

ought to call, also, "physiology," or *natural* history of man; for it ought to be in truth the history of his Nature; and not merely of the accidents which have befallen him. Do we not too much confuse the important part of the science with the unimportant?

In giving the natural history of the lion, you do not care materially where such and such a lion was trapped, or how many sheep it had eaten. You want to know what sort of a minded and shaped creature it is, or ought to be. But in all our books of human history we only care to tell what has happened to men, and how many of each other they have, in a manner, eaten, when they are, what Homer calls δημοβόροι, people-eaters; and we scarcely understand, even to this day, how they are truly minded. Nay, I am not sure that even this art of heraldry, which has for its main object the telling and proclamation of our chief minds and characters to each other, and keeping record of our descent by race, as far as it is possible, (or, under the present aspect of Darwinism, pleasant,) to trace it;—I am not sure that even heraldry has always understood clearly what it had to tell. But I am very sure it has not been understood in the telling.

208. Some of you have, I hope, looked at this book* of Arthur Helps, on 'War and Culture,' about which I cannot now say what I would, because he has done me the grace of dedicating it to me; but you will find in it, directly bearing on our present subject, this story about heraldry:

"A friend of mine, a physician, became entangled in the crowd at Kennington on that memorable evening when a great Chartist row was expected, and when Louis Napoleon armed himself with a constable's staff to support the cause of order. My friend observed a young man of pleasant appearance, who was very busy in the crowd, and appeared to be a leader amongst them. Gradually, by the pressure of the crowd, the two were brought near together, and the good doctor had some talk with this fiery partisan. They exchanged confidences; and to his astonishment, the doctor found that this furious young Chartist gained his livelihood, and a very good livelihood

* Conversations on War and General Culture.

too, by heraldic painting—by painting the coats-of-arms upon carriages. Now, if you can imagine this young man's darling enterprise to have been successful, if Chartism had prevailed, what would have become of the painting of arms upon carriage-panels? I believe that my good doctor insinuated this suggestion to the young man, and that it was received with disdain. I must own, therefore, that the *utile*, even when brought home to a man's self, has much less to do with people's political opinions and desires, than might at first be supposed. Indeed, I would venture to maintain, that *no great change has ever been produced in the world by motives of self-interest.* Sentiment, that thing which many wise people affect to despise, is the commanding thing as regards popular impulses and popular action."

209. This last sentence would have been wholly true, had Mr. Helps written 'no great *living* change.' The changes of Dissolution are continually produced by self-interest,—for instance, a great number of the changes in your methods of life in England just now, and many of those in your moral temper, are produced by the percentage on the sale of iron. And I should have otherwise interpreted the heroism of the young Chartist, and said that he was moved on the 10th of April, by a deep under-current of self-interest; that by overthrowing Lordship, he expected to get much more for himself than his salary as an heraldic painter; and that he had not, in painting his carriage-panels, sentiment enough, or even sentiment at all.

"Paint me my arms,—" said Giotto, as the youth threw him his white shield, with that order,—"he speaks as if he were one of the Bardi!" Our English panel-painter had lost the consciousness that there yet remained above him, so much as one, of the Bardi.

May not that be somewhat the Bardi's fault? in that they have not taught their Giottos, lately, the function of heraldry, or of any other higher historical painting.

We have, especially, to-day, to consider what that function is.

210. I said that the function of historical painting, in representing animals, is to discern and record what is best and

most beautiful in their ways of life, and their forms ; so also, in representing man, it is to record of man what has been best in his acts and way of life, and fairest in his form.

But this way of the life of man has been a long one. It is difficult to know it—more difficult to judge ; to do either with complete equity is impossible ; but it is always possible to do it with the charity which does not rejoice in iniquity.

211. Among the many mistakes we have lately fallen into, touching that same charity, one of the worst is our careless habit of always thinking of her as pitiful, and to be concerned only with miserable and wretched persons ; whereas her chief joy is in being reverent, and concerned mainly with noble and venerable persons. Her poorest function is the giving of pity ; her highest is the giving of *praise*. For there are many men, who, however fallen, do not like to be pitied ; but all men, however far risen, like to be praised.

212. I had occasion in my last lecture to express my regret that the method of education in this country has become so distinctly competitive. It is necessary, however, to distinguish carefully between the competition which is for the means of existence, and that which is for the praise of learning. For my own part, so far as they affect our studies here, I equally regret both : but competition for money I regret absolutely ; competition for praise, only when it sets the reward for too short and narrow a race. I want you to compete, not for the praise of what you know, but for the praise of what you become ; and to compete only in that great school, where death is the examiner, and God the judge. For you will find, if you look into your own hearts, that the two great delights, in loving and praising, and the two great thirsts, to be loved and praised, are the roots of all that is strong in the deeds of men, and happy in their repose. We yet, thank Heaven, are not ashamed to acknowledge the power of love ; but we confusedly and doubtfully allege that of honour ; and though we cannot but instinctively triumph still, over a won boat-race, I suppose the best of us would shrink somewhat from declaring that the love of praise was to be one of the chief motives of their future lives.

213. But I believe you will find it, if you think, not only one of the chief, but absolutely the chief, motive of human action; nay, that love itself is, in its highest state, the rendering of an exquisite praise to body and soul; and our English tongue is very sacred in this; for its Saxon word, love, is connected, through the old French verb, loer, (whence louange), with the Latin, 'laus,' not 'amor.'

And you may sum the duty of your life in the giving of praise worthily, and being yourselves worthy of it.

214. Therefore in the reading of all history, your first purpose must be to seek what is to be praised; and disdain the rest: and in doing so, remember always that the most important part of the history of man is that of his imagination. What he actually does, is always in great part accidental; it is at best a partial fulfilment of his purpose; and what we call history is often, as I said, merely a record of the external accidents which befall men getting together in large crowds. The real history of mankind is that of the slow advance of resolved deed following laboriously just thought; and all the greatest men live in their purpose and effort more than it is possible for them to live in reality. If you would praise them worthily, it is for what they conceived and felt; not merely for what they have done.

215. It is therefore a true historian's work diligently to separate the deed from the imagination; and when these become inconsistent, to remember that the imagination, if precious at all, is indeed the most precious. It is no matter how much, or how little of the two first books of Livy may be literally true. The history of the Romans is the history of the nation which could *conceive* the battle of the Lake Regillus. I have rowed in rough weather on the Lake of the four cantons often enough to know that the legend of Tell is, in literal detail, absurd: but the history of Switzerland is that of the people who expressed their imagination of resistance to injustice by that legend, so as to animate their character vitally to this day.

216. But in no part of history does the ideal separate itself so far from the reality; and in no part of it is the ideal so

necessary and noble, as in your own inherited history—that of Christian Chivalry.

For all English gentlemen, this is the part of the tale of the race of man which it is most essential for them to know. They may be proud that it is also the greatest part. All that hitherto has been achieved at best,—all that has been in noble preparation instituted,—is begun in the period, and rooted in the conception, of Chivalry.

You must always carefully distinguish that conception from the base strength of the resultless passions which distort and confuse it. Infinitely weaker, the idea is eternal and creative; the clamorous rages pass away,—ruinous it may be, prosperous it may be, for their time;—but insignificant for ever. You find kings and priests alike, always inventing expedients to get money; you find kings and priests alike, always inventing pretexts to gain power. If you want to write a practical history of the Middle Ages, and to trace the real reasons of the things that actually happened, investigate first the history of the money; and then of the quarrels for office and territory. But the things that actually happened were of small consequence—the thoughts that were developed are of infinite consequence.

217. As I was walking back from Hincksey last evening, somewhat discomforted by the look of bad weather, and more in myself, as I thought over this closing lecture, wondering how far you thought I had been talking idly to you, instead of teaching you to draw, through this term, I stopped before Messrs. Wyatt's window; caught—as it was intended every one should be,—by its display of wonderful things. And I was very unhappy as I looked, for it seemed to me you could not but think the little I could show you how to do quite valueless; while here were produced, by mysteries of craft which you might expect me at once to explain, brilliant water-colours in purple and gold, and photographs of sea-waves, and chromolithotints of beautiful young ladies, and exquisitely finished engravings of all sorts of interesting scenes, and sublime personages; patriots, saints, martyrs, penitents, and who not! and what not! all depicted with a dexterity which it has

cost the workmen their life's best energy to learn, and requires great cleverness thus to apply. While, in your room for study, there are only ugly photographs of Dürers and Holbeins, and my rude outlines from leaves, and you scarcely ever hear me say anything in praise of that delightful and elaborate modern art at all.

218. So I bought this Madonna,* which was the prettiest thing I saw ; and it will enable me to tell you why this modern art is, indeed, so little to be studied, even at its best. I think you will all like the plate, and you ought to like it ; but observe in what its beauty consists. First, in very exquisite line engraving : against that I have nothing to say, feeling the greatest respect for the industry and skill it requires. Next, in a grace and severity of action which we all are ready to praise ; but this is not the painter's own bestowing ; the trick of it is learned from Memling and Van Eyck, and other men of the northern religious school. The covering of the robe with jewels is pleasing to you ; but that is learned from Angelico and John Bellini ; and if you will compare the jewel-painting in the John Bellini (Standard No. 5), you will find this false and formal in comparison. Then the face is much dignified by having a crown set on it—which is copied from the ordinary thirteenth century form, and ill done. The face itself is studied from a young German mother's, and is only by the painter's want of skill made conventional in expression, and formal in feature. It would have been wiser and more difficult to have painted her as Raphael or Reynolds would, with true personal resemblance, perfected in expression.

219. Nevertheless, in its derivative way, this is very lovely. But I wish you to observe that it *is* derivative in all things. The dress is derivative ; the action, derivative : above all, the conception is derivative altogether, from that great age of Christian chivalry, which, in art and thought alike, surpassed the Greek chivalry, because it added to their enthusiasm of patriotism the enthusiasm of imaginative love, sanctioned by this ruling vision of the Madonna, as at once perfect maid and perfect mother.

* Now, Ref. 104.

And your study of the art of the middle ages must begin in your understanding how the men of them looked on Love as the source of all honour, as of life; and how, from the least thing to the greatest, the honouring of father and mother, the noble esteem of children, and the sincere respect for race, and for the courtesies and prides that graced and crowned its purity, were the sources of all their virtue, and all their joy.

220. From the least things, I say, to the greatest. I am to speak to-day of one of apparently the least things; which is, indeed, one of the greatest. How much of the dignity of this Madonna, do you suppose, depends on the manner she bears her dress, her crown, her jewels, and her sceptre?

In peasant and prince alike, you will find that ultimately, character is truly heralded in dress; and that splendour in dress is as necessary to man as colour to birds and flowers, but splendour with more meaning. Splendour, observe, however, in the true Latin sense of the word; *brightness* of colour; not gaudiness: what I have been telling you of colour in pictures will apply equally to colour in dress: vulgarity consists in the insolence and discord of it, not in brightness.

221. For peasant and prince alike, in healthy national order, brightness of dress and beautiful arrangement of it are needful. No indication of moral decline is more sure than the squalor of dress among the lower orders, and the fear or shame of the higher classes to bear their proper insignia.

Such fear and shame are singularly expressed, here in Oxford, at this hour. The nobleman ceases to wear the golden tassel in his cap, so accepting, and publicly heralding his acceptance of, the popular opinion of him that he has ceased to *be* a nobleman, or noteworthy person.* And the members of

* "Another stride that has been taken appears in the perishing of heraldry. Whilst the privileges of nobility are passing to the middle class, the badge is discredited, and the titles of lordship are getting musty and cumbersome. I wonder that sensible men have not been already impatient of them. They belong, with wigs, powder, and scarlet coats, to an earlier age, and may be advantageously consigned with paint and tattoo, to the dignitaries of Australia and Polynesia."—R. W. EMERSON (English Traits.)

the University, generally, shrink from wearing their academical dress, so accepting, and publicly heralding their acceptance of, the popular opinion that everybody else may be as good scholars as they. On the other hand, I see continually in the streets young men in bright costumes of blue and white ; in such evidently proud heraldry proclaiming their conviction that the chief object of residence in Oxford is learning to row ; the rowing itself being, I imagine, not for real boat service, but for purposes of display.

222. All dress is thus heraldic ; a soldier's dress only more definitely so, in proclaiming the thing he means to die as well as to live for ; but all is heraldic, from the beggar's rag to the king's diadem ; it may be involuntarily, it may be, insolently ; but when the characters of men are determined, and wise, their dress becomes heraldic reverently, and in order. "Togam e tugurio proferre uxorem Raciliam jubet ;" and Edie Ochiltree's blue gown is as honourably heraldic as a knight's ermine.

223. The beginning of heraldry, and of all beautiful dress, is, however, simply in the wearing of the skins of slain animals. You may discredit, as much as you choose, the literal meaning of that earliest statement, "Unto Adam also, and to his wife, did the Lord God make coats of skins, and clothed them ;" but the figurative meaning of it only becomes the stronger. For if you think of the skins of animals as giving the four great materials of dress—leather, fur, wool, and down, you will see in this verse the summary of what has ever since taken place in the method of the providence of the Maker of Man and beast, for the clothing of the naked creature who was to rule over the rest.

224. The first practical and savage use of such dress was that the skin of the head of the beast became a covering for the head of its slayer : the skin of its body his coat ; the skin of the fore legs was knotted in front, and the skin of the hind legs and tail became tassels, the jags of the cut edges forming a kind of fringe here and there.

You have thus the first conception of a helmet, with the mane of the animal for its crest or plume, and the first conception of a cuirass, variously fringed, striped, or spotted : in

complete accoutrement for war, you have to add spear, (or arrow), and shield. The spear is properly a beam of wood, iron pointed ; the shield a disk of leather, iron fronted.

And armed strength for conduct is symbolized for all future time by the Greeks, under the two types of Heracles and Athena ; the one with the low lion's crest and the arrow, the other with the high horse's crest, and the spear ; one with the lion-skin, the other with the goat-skin ;—both with the round shield.

225. The nebris of Dionusos, and leopard-skin of the priests of Egypt relate to astronomy, not war ; and the interest in their spots and bars, as variously symbolic, together with real pleasure in their grotesqueness, greatly modified the entire system of Egyptian colour-decoration. On the earliest Greek vases, also, the spots and bars of the animals are carried out in spots or chequers upon the ground (sometimes representing flowers), and the delight in "divers colours of needlework," and in fantasy of embroidery, gradually refine and illumine the design of Eastern dress. But only the patterns derived from the colours of animals become classical in heraldry under the general name of "furres," one of them "vaire" or "verrey" ("the variegated fur,") rudely figuring the material composed of the skins of small animals sewn together, alternately head to tail ; the other, ermine, peculiarly honourable, from the costliness, to southern nations, of the fur it represents.

226. The name of the principal heraldic colour has a similar origin : the "rams' skins dyed red" which were used for the curtains of the Jewish tabernacle, were always one of the principal articles of commerce between the east and west : in mediæval Latin they were called "gulae," and in the French plural "gules," so that to be dressed in "gules" came gradually to mean being dressed in the particular red of those skins, which was a full soft scarlet, not dazzling, but warm and glowing. It is used, in opposition to darker purple, in large masses in the fresco painting of later Rome ;—is the dominant colour of ornamental writing in the middle ages (giving us the ecclesiastical term "rubric"), and asserts itself

finally, and most nobly, in the fresco paintings of Ghirlandajo and Luini. I have tried to represent very closely the tint of it Luini has given to St. Catherine's mantle, in my study in your schools. Titian keeps it also as the key-note of his frescoes ; so also Tintoret ; but Raphael, Correggio, and Michael Angelo, all substituted orange for it in opposition to purple ; and the entire scheme of colour in the Vatican frescoes is of orange and purple, broken by green and white, on a ground of grey. This orange and purple opposition in meaner hands became gaudy and feeble, and the system of mediæval colour was at last totally destroyed by it; the orange remaining to this day the favourite, and most distinctive, hue in bad glass painting.

227. The forms of dress, however, derived from the skins of animals are of much more importance than the colours. Of these the principal is the crest, which is properly the mane of lion or horse. The skin of the horse was neither tough, nor of convenient size for wearing ; but the classical Greek helmet is only an adaptation of the outline of its head, with the mane floating behind : many Etruscan helmets have ears also, while, in mediæval armour, light plates, cut into the shape of wings of birds, are often placed on each side of the crest, which then becomes not the mane of the animal merely, but the image of the entire creature which the warrior desires to be renowned for having slain.

228. The Heraldic meaning of the crest is accordingly, first, that the Knight asserts himself to have prevailed over the animal it represents ; and to be stronger than such a creature would be, therefore, against his human enemies. Hence, gradually, he considers himself invested with the power and character of the slain creature itself ; and, as it were, to have taken from it, for his spoil, not its skin only, but its strength. The crest, therefore, is the heraldic indication of personality, and is properly to be distinguished from the bearing on the shield, because that indicated race ; but the crest, personal character and valour.

229. I have traced the practical truth which is the foundation of this idea of the transmitted strength of the slain creature becoming the inheritance of its victor, in the account

given of the coins of Camarina, in the *Queen of the Air*. But it is strange and sad to reflect how much misery has resulted, in the history of man, from the imaginative excuse for cruelty afforded by the adopted character of savage animals; and how many wolves, bears, lions, and eagles, have been national symbols, instead of gentler creatures. Even the heraldic symbol of Christ is in Italy oftener the lion than the lamb: and among the innumerable painters of his Desert Prophet, only Filippo Lippi understood the full meaning of the raiment of camel's hair, and made him wear the camel's skin, as Heracles the Lion's.

230. Although the crest is thus essentially an expression of personal character, it practically becomes hereditary; and the sign on shield and helmet is commonly the same. But the shield has a system of bearings peculiar to itself, to which I wish especially to direct your attention to-day.

Our word 'shield' and the German 'schild' mean 'the covering thing,' that behind which you are sheltered, but you must be careful to distinguish it from the word shell, which means properly a scale or plate, developed, like a fish's scale, for the protection of the body.

There are properly only two kinds of shields, one round and the other square, passing into oval and oblong; the round one being for use in free action, the square one for adjustment to ground or walls; but, on horseback, the lower part of the shield must be tapered off, in order to fall conveniently on the left side of the horse.

And, therefore, practically, you have two great forms of shield; the Greek round one, for fighting on foot, or in the chariot, and the Gothic pointed one for fighting on horseback. The oblong one for motionless defence is, however, almost always given to the mythic figure of Fortitude, and the bearings of the Greek and Gothic shields are always designed with reference to the supposed figures of the circle and square.

The Greek word for the round shield is 'aspis.' I have no doubt merely a modification of 'apsis' the potter's wheel; the proper word for the Gothic shield is 'ecu' from the Latin 'scutum,' meaning a shield covered with leather. From 'ecu'

you have 'ecuyer;'—from scutum 'scutiger,' both passing into our English 'squire.'

231. The aspis of the Greeks might be much heavier than the Gothic shield, because a Greek never rode fully armed; his object was to allow both to his horse and to himself the most perfect command of limb compatible with protection; if, therefore, he was in full armour, and wanted his horse to carry him, he put a board upon wheels, and stood on that, harnessing sometimes to it four horses of the highest breed abreast. Of all hitherto practised exertions of manual dexterity, the driving thus at full speed over rough ground, standing in the chariot, is, as far as I know, the greatest ever attained by general military discipline.

It is true that to do anything perfectly well is about equally difficult; and I suppose that in a chariot race, a tournament, or a modern game at cricket, the manual art of the most highly-trained men would be almost equally fine; still, practically, in Gothic chivalry, the knight trusted more to his weight and less to his skill than a Greek did; nor could a horse's pace under armour ever render precision of aim so difficult as at unarmed speed.

232. Another great difference of a parallel kind exists in the knight's body-armour. A Greek never hopes to turn a lance by his cuirass, nor to be invulnerable, except by enchantment, in his body armour, because he will not have it cumbrous enough to impede his movements; but he makes his shield, if possible, strong enough to stop a lance, and carries it as he would a piece of wall: a Gothic knight, on the contrary, endeavoured to make his coat armour invulnerable, and carried the shield merely to ward thrusts on the left side, never large enough to encumber the arm that held the reins. All fine design in Gothic heraldry is founded, therefore, on the form of a short, but pointed shield, convex enough to throw the point of a spear aside easily; a form roughly extending from the beginning of the twelfth to the middle of the fifteenth century, but of which the most beautiful types are towards the end of the thirteenth.

233. The difference in method of device between the Gothic

and classic shields resulted partly from this essential difference in form. The pointed shield, having definitely two sides, like a pointed arch, and a determined position, naturally suggested an arrangement of bearings definitely on one side or the other, or above, or below the centre, while the Greek shield had its boss, or its main bearing, in the centre always, with subordinate decoration round. Farther, the Gothic fineness of colour-instinct seized at once on this division of parts as an opportunity for inlaying or counterchanging colours; and finally, the respect for race, carried out by registry of the remotest branches of noble families, compelled the Gothic heralds of later times to use these methods of dividing or quartering in continually redoubled complexity.

234. Essentially, therefore, as distinguished from the classic shield, the Gothic one is parti-coloured beneath its definite bearings, or rather, bi-coloured; for the tinctures are never more than two in the main design of them; and the specific methods of arrangement of these two masses of colour have deeper and more ancient heraldic significance than, with few exceptions, their superimposed bearings. I have arranged the twelve principal ones * in the 7th of your rudimentary exercises, and they will be entirely fixed in your minds by once drawing it.

235. Observe respecting them.

1. The Chiefe; a bar of colour across the upper part of the shield, signifies authority or chief-dom, as the source of all order, power, and peace.

2. The Cross, as an ordinary, distinguished from the cross as a bearing, consists simply of two bars dividing the shield into four quarters; and, I believe, that it does not in this form stand properly as a symbol of Christian faith, but only as one of Christian patience and fortitude. The cross as a symbol of faith is terminated within the field.

* Charges which "doe peculiarly belong to this art, and are of ordinary use therein, in regard whereof they are called 'ordinaries.'"—See GUILLIM, sect. ii. chap. iii. (Ed. 1638.)

"They have also the title of honourable ordinaries in that the court armour is much honoured thereby." The French call them "pièces honorables."

3. The Fesse, a horizontal bar across the middle of the shield, represents the knight's girdle, or anything that binds and secures, or continues. The word is a corruption of fascia. Sir Francis Drake received for arms from Queen Elizabeth a Fesse waved between two pole-stars, where it stands for the waved surface of the sea, and partly, also, to signify that Sir Francis put a girdle round the earth; and the family of Drummond carries three diminutive Fesses, or bars, waved, because their ancestor brought Queen Margaret safe through many storms.

4. The Bend, an oblique bar descending from right to left of the holder of the shield, represents the sword-belt. The Latin balteus and balteum are, I believe, the origin of the word. They become bendellus and bendellum; then bandeau and bande. Benda is the word used for the riband round the neck of St. Etheldreda, in the account of her death quoted by Du Cange. I believe, also, the fesse stands often for the cross-bar of the castle gate, and the bend for its very useful diagonal bar: this is only a conjecture, but I believe as likely to be true as the idea, certainly admitted in heraldry, that the bend sometimes stands for a scaling ladder: so also the next four most important ordinaries have all an architectural significance.

5. The Pale, an upright bar dividing the shield in half, is simply an upright piece of timber in a palisade. It signifies either defence or enclosure.

6. The Pile, a wedge-shaped space of colour with the point downwards, represents what we still call a pile; a piece of timber driven into moist ground to secure the foundation of any building.

7. The Canton, a square space of colour in either of the upper corners of the shield, signifies the corner-stone of a building. The origin and various use of this word are very interesting. The Greek *κανθὸς*, used by Aristotle for the corner of the eyes, becomes canto, and then cantonus. The French coin (corner), is usually derived from the Latin cuneus; but I have no doubt it is one corruption of canton: the mediæval-Latin cantonus is either an angle or recess, or a four-

square corner-stone. The heraldic canton is the corner-stone of a building, and the French cantonnier is a road-mender, because the essential thing in repairing a road is to get its corner or edge firm.

8. The Chevron, a band bent at an angle (properly a right angle), with its point upwards, represents the gable or roof of a house. Thus the four last-named ordinaries represent the four essentials of a fixed habitation: the pale, its enclosure within a given space of ground; the pile, its foundation; the canton its wall, and the chevron its roof.

9. The Orle, a narrow band following the outline of the shield midway between its edge and centre, is a more definite expression of enclosure or fortification by moat or rampart. The relations of this word, no less than that of the canton, are singular, and worth remembering. Du Cange quotes under it an order of the municipality of Piacenza, that always, in the custom-house where the salt-tax was taken, "a great orled disk" should be kept; "dischus magnus orlatus," *i. e.*, a large plate with a rim, in which every day fresh salt should be placed. Then note that the word disk is used in the middle ages, either for a plate, or a table, (the "holy disk" is the patina of the sacrament), but most generally for a table, whence you get the old German disch; our dish, the French disner, diner; and our dinner. The disk cut out into a ring becomes a quoit, which is the simplest form of orle. The word 'orle' itself comes, I believe, from ora, in old Latin, which took a diminutive, orula; or perhaps the l was put in merely to distinguish, to the ear, a margined thing, 'orlatus,' from a gilded thing, 'auratus.' It stands for the hem of a robe, or the fillet of a crown, as well as for any margin; and it is given as an ordinary to such as have afforded protection and defence, because it defends what is within it. Reduced to a narrow band, it becomes a 'Tressure.' If you have a sovereign of 1860 to 1870 in your pocket, and look at the right hand upper corner of the Queen's arms, you will see the Scottish Lion within the tressure decorated with fleur-de-lys, which Scotland bears in memory of her treaty with Charlemagne.

10. The Gyron, a triangular space of colour with its point in the centre of the shield, derives its name from the old Latin gyro, a fold, "pars vestis quâ laxior fit, et in superiori parte contracta, in largiorem formam in imo se explicat." The heraldic 'gyron,' however, also has a collateral reference to, and root in, the word 'gremium,' bosom or lap; and it signifies properly the chief fold or fall of the dress either over the bosom, or between the knees; and has whatever symbolic expression may be attributed to that fold, as a sign of kindness or protection. The influence of the lines taken by softly falling drapery in giving gentleness to the action of figures was always felt by the Gothic artists as one of the chief elements of design; and the two constantly repeated figures of Christ holding souls in the 'gremium' of his robe, and of the Madonna casting hers over suppliants, gave an inevitably recognized association to them.

11. The Flasque, a space of colour terminated by a curved line on each flank of the shield, derives its name from the Latin flecto, and is the bearing of honour given for successful embassy. It must be counted among the ordinaries, but is of rare occurrence in what groups of authentic bearings I have examined.

12. The Saltire, from salir, represents the securest form of machine for mounting walls; it has partly the same significance as the ladder of the Scaligers, but, being properly an ordinary, and not a bearing, has the wider general meaning of successful ascent, not that of mere local attack. As a bearing, it is the St. Andrew's Cross.

236. These twelve forms of ordinary then, or first colour divisions of the shield, represent symbolically the establishment, defence, and exaltation of the Knight's house by his Christian courage; and are in this symbolism, different from all other military bearings. They are throughout essentially founded on the "quartering" or division of the field into four spaces by the sign of the Cross; and the history of the chivalry of Europe is absolutely that of the connection of domestic honour with Christian faith, and of the exaltation of

these two sentiments into the highest enthusiasm by cultivated imagination.

The means of this culture by the finer arts; the errors, or falls, of the enthusiasm so excited; its extinction by avarice, pride, and lust, in the period of the (so called) Renaissance, and the possibility of a true Renaissance or Restoration of courage and pure hope to Christian men in their homes and industries, must form the general subject of the study into which I have henceforth to lead you. In a future course of lectures it will be my endeavour to show you, in the elementary forms of Christian architecture, the evidence of such mental development and decline in Europe from the tenth to the seventeenth century; but remember that my power, or any one else's, to show you truths of this kind, must depend entirely on the degree of sympathy you have in yourselves with what is decorous and generous. I use both these words advisedly, and distinctively, for every high quality of art consists either in some expression of what is decent,—becoming,—or disciplined in character, or of what is bright and generous in the forces of human life.

I need not say that I fear no want of such sympathy in you; yet the circumstances in which you are placed are in many respects adverse to it.

237. I find, on returning to the University after a period of thirty years, the scope of its teaching greatly extended, the zeal of its masters certainly undiminished; and, as far as I can judge, the feeling of the younger members of the University better, and their readiness to comply with all sound advice, greater, than in my time. What scandals there have been among us, I think have been in great part accidental, and consequent chiefly on the intense need for excitement of some trivial kind, which is provoked by our restless and competitive work. In temper, in general amenability to right guidance, and in their sense of the advantages open to them, more may now be hoped than ever yet from the students of Oxford—one thing only I find wanting to them altogether—distinctness of aim.

238. In their new schools of science they learn the power

of machinery and of physical elements, but not that of the soul; I am afraid, in our new schools of liberal religion they learn rather to doubt their own faiths than to look with patience or respect on those of others; and in our new schools of policy, to efface the canons of the past, without having formed any distinct conception of those which must regulate the institutions of the future.

239. It is therefore a matter of very deep rejoicing to me that, in bringing before your examination the best forms of English art, I am necessarily leading you to take interest in the history of your country at the time when, so to speak, it became England. You see how, in every college which is now extending or renewing its buildings, the adopted style is approximately that of the thirteenth century;—it being felt, and rightly felt, by a continually-extending instinct, that only then the national mind had unimpaired power of ideal conception. Whatever else we may have advanced in, there is no dispute that, in the great arts, we have steadily, since that thirteenth century, declined: and I have, therefore, since accepting this professorship, partly again taken up my abandoned idea of writing the story of that century, at least in England; —of writing it, or, at all events, collecting it, with the help of my pupils, if they care to help me. By myself, I can do nothing; yet I should not ask them to help me if I were not certain that at this crisis of our national existence the fixing the minds of young and old upon the customs and conception of chivalry is the best of all moral education. One thing I solemnly desire to see all children taught—obedience; and one to all persons entering into life—the power of unselfish admiration.

240. The incident which I have related in my fourth lecture on sculpture, seen by me last year on the bridge of Wallingford, is a sufficient example of the courtesies in which we are now bringing up our peasant children. Do you think that any science or art we can teach them will make them happy under such conditions? Nay, in what courtesy or in what affection are we even now carefully training ourselves; —above all, in what form of duty or reverence to those to

whom we owe all our power of understanding even what duty or reverence mean? I warned you in my former lecture against the base curiosity of seeking for the origin of life in the dust; in earth instead of heaven: how much more must I warn you against forgetting the true origin of the life that is in your own souls, of that good which you have heard with your ears, and your fathers have told you. You buy the picture of the Virgin as furniture for your rooms; but you despise the religion, and you reject the memory, of those who have taught you to love the aspect of whatsoever things and creatures are good and pure: and too many of you, entering into life, are ready to think, to feel, to act, as the men bid you who are incapable of worship, as they are of creation;—whose power is only in destruction; whose gladness only in disdain; whose glorying is in their shame. You know well, I should think, by this time, that I am not one to seek to conceal from you any truth of nature, or superstitiously decorate for you any form of faith; but I trust deeply—(and I will strive, for my poor part, wholly, so to help you in steadfastness of heart)—that you, the children of the Christian chivalry which was led in England by the Lion-Heart, and in France by Roland, and in Spain by the Cid, may not stoop to become as these, whose thoughts are but to invent new foulness with which to blaspheme the story of Christ, and to destroy the noble works and laws that have been founded in His name.

Will you not rather go round about this England, and tell the towers thereof, and mark well her bulwarks, and consider her palaces, that you may tell it to the generation following? Will you not rather honour with all your strength, with all your obedience, with all your holy love and never-ending worship, the princely sires, and pure maids, and nursing mothers, who have bequeathed and blest your life?—that so, for you also, and for your children, the days of strength, and the light of memory, may be long in this lovely land which the Lord your God has given you.

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"I never wrote a letter in my life which all the world are not welcome to read if they will."—FORS CLAVIGERA, Letter lix., 1875.

AUTHOR'S PREFACE.

My good Editor insists that this book must have an Author's Preface ; and insists further that it shall not contain compliments to him on the editorship. I must leave, therefore, any readers who care for the book, and comprehend the trouble that has been spent on it, to pay him their own compliments, as the successive service of his notes may call for them : but my obedience to his order, not in itself easy to me, doubles the difficulty I have in doing what nevertheless. I am resolved to do—pay, that is to say, several extremely fine compliments to myself, upon the quality of the text.

For of course I have read none of these letters since they were first printed : of half of them I had forgotten the contents, of some, the existence ; all come fresh to me ; and here in Rouen, where I thought nothing could possibly have kept me from drawing all I could of the remnants of the old town, I find myself, instead, lying in bed in the morning, reading these remnants of my old self—and that with much contentment and thankful applause.

For here are a series of letters ranging over a period of, broadly, forty years of my life ; most of them written hastily, and all in hours snatched from heavier work : and in the entire mass of them there is not a word I wish to change, not a statement I have to retract, and, I believe, few pieces of advice, which the reader will not find it for his good to act upon.

With which brief preface I am, for my own part, content; but as it is one of an unusual tenor, and may be thought by some of my friends, and all my foes, more candid than graceful, I permit myself the apologetic egotism of enforcing one or two of the points in which I find these letters so well worth—their author's—reading.

In the building of a large book, there are always places where an indulged diffuseness weakens the fancy, and prolonged strain subdues the energy: when we have time to say all we wish, we usually wish to say more than enough; and there are few subjects we can have the pride of exhausting, without wearying the listener. But all these letters were written with fully provoked zeal, under strict allowance of space and time: they contain the choicest and most needful things I could within narrow limits say, out of many contending to be said; expressed with deliberate precision; and recommended by the best art I had in illustration or emphasis. At the time of my life in which most of them were composed, I was fonder of metaphor, and more fertile in simile, than I am now; and I employed both with franker trust in the reader's intelligence. Carefully chosen, they are always a powerful means of concentration; and I could then dismiss in six words, "thistledown without seeds, and bubbles without color," forms of art on which I should now perhaps spend half a page of analytic vituperation; and represent, with a pleasant accuracy which my best methods of outline and exposition could now no more achieve, the entire system of modern plutocratic policy, under the luckily remembered image of the Arabian bridegroom, bewitched with his heels uppermost.

It is to be remembered also that many of the subjects handled can be more conveniently treated controversially than directly; the answer to a single question may be made clearer

than a statement which endeavors to anticipate many ; and the crystalline vigor of a truth is often best seen in the course of its serene collision with a trembling and dissolving fallacy. But there is a deeper reason than any such accidental ones for the quality of this book. Since the letters cost me, as aforesaid, much trouble ; since they interrupted me in pleasant work which was usually liable to take harm by interruption ; and since they were likely almost, in the degree of their force, to be refused by the editors of the adverse journals, I never was tempted into writing a word for the public press, unless concerning matters which I had much at heart. And the issue is, therefore, that the two following volumes contain very nearly the indices of everything I have deeply cared for during the last forty years ; while not a few of their political notices relate to events of more profound historical importance than any others that have occurred during the period they cover ; and it has not been an uneventful one.

Nor have the events been without gravity ; the greater, because they have all been inconclusive. Their true conclusions are perhaps nearer than any of us apprehend ; and the part I may be forced to take in them, though I am old,—perhaps I should rather say, *because* I am old,—will, as far as I can either judge or resolve, be not merely literary.

Whether I am spared to put into act anything here designed for my country's help, or am shielded by death from the sight of her remediless sorrow, I have already done for her as much service as she has will to receive, by laying before her facts vital to her existence, and unalterable by her power, in words of which not one has been warped by interest nor weakened by fear ; and which are as pure from selfish passion as if they were spoken already out of another world.

J. RUSKIN.

ROUEN, *St. Firmin's Day*, 1880.

EDITOR'S PREFACE.

Some words are needed by way of a general note to the present volumes in explanation of the principles upon which they have been edited. It is, however, first due to the compiler of the Bibliography of Mr. Ruskin's writings,[1] to state in what measure this book has been prompted and assisted by his previous labors. Already acquainted with some few of the letters which Mr. Ruskin had addressed at various times to the different organs of the daily press, or which had indirectly found their way there, it was not until I came across the Bibliography that I was encouraged to complete and arrange a collection of these scattered portions of his thought. When I had done this, I ventured to submit the whole number of the letters to their author, and to ask him if, after taking two or three of them as examples of the rest, he would not consider the advisability of himself republishing, if not all, at least a selected few. In reply, he was good enough to put me in communication with his publisher, and to request me to edit any or all of the letters without further reference to him.

I have, therefore, to point out that except for that request, or rather sanction; for the preface which he has promised to

[1] The Bibliography of Ruskin: a bibliographical list, arranged in chronological order, of the published writings of John Ruskin, M.A. (From 1834 to 1879.) By Richard Herne Shepherd.

add after my work upon the volumes is finished; and for the title which it bears, Mr. Ruskin is in no way responsible for this edition of his letters. I knew, indeed, from the words of "Fors Clavigera" which are printed as a motto to the book, that I ran little risk of his disapproval in determining to print, not a selection, but the whole number of letters in question; and I felt certain that the completeness of the collection would be considered a first essential by most of its readers, who are thus assured that the present volumes contain, with but two exceptions, every letter mentioned in the last edition of the bibliography, and some few more beside, which have been either printed or discovered since its publication.

The two exceptions are, first, the series of letters on the Lord's Prayer which appeared in the pages of the *Contemporary Review* last December; and, secondly, some half-dozen upon "A Museum or Picture Gallery," printed in the *Art Journal* of last June and August. It seemed that both these sets of letters were really more akin to review articles cast in an epistolary form, and would thus find fitter place in a collection of such papers than in the present volumes; and for the omission of the second set there was a still further reason in the fact that the series is not yet completed.[1] On the other hand, the recent circular on the proposed interference

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[1] The letter out of which it took its rise, however, will be found on the 82d page of the first volume; and with regard to it, and especially to the mention of Mr. Frith's picture in it, reference should be made to part of a further letter in the Art Journal of this month.

"I owe some apology, by the way, to Mr. Frith, for the way I spoke of his picture in my letter to the Leicester committee, not intended for publication, though I never write what I would not allow to be published, and was glad that they asked leave to print it." (Art Journal, August, 1880, where this sentence is further explained.)

with St. Mark's, Venice, is included in the first, and one or two other extraneous matters in the second volume, for reasons which their connection with the letters amongst which they are placed will make sufficiently clear.

The letters are reprinted word for word, and almost stop for stop, from the newspapers and other pages in which they first appeared. To ensure this accuracy was not an easy matter, and to it there are a few intentional exceptions. A few misprints have been corrected, such as that of "Fat Bard" for "Fort Bard" (vol. i. p. 147); and now and then the punctuation has been changed, as on the 256th page of the same volume, where a comma, placed in the original print of the letter between the words "visibly" and "owing," quite confused the sentence. To these slight alterations may be added others still less important, such as the commencement of a fresh paragraph, or the closing up of an existing one, to suit the composition of the type, which the number of notes rendered unusually tiresome. The title of a letter, too, is not always that provided it by the newspaper; in some cases it seemed well to rechristen, in others it was necessary to christen a letter, though the former has never been done where it was at all possible that the existing title (for which reference can always be made to the bibliography) was one given to it by Mr. Ruskin himself.

The classification of the letters is well enough shown by the tables of contents. The advantages of a topical over a chronological arrangement appeared beyond all doubt; whilst the addition to each volume of a chronological list of the letters contained in it, and the further addition to the second volume of a similar list of all the letters contained in the book, and of a full index, will, it is hoped, increase the usefulness of the work.

The beautiful engraving which forms the frontispiece of the first volume originally formed that of "The Oxford Museum." The plate was but little used in the apparently small edition of that book, and was thus found to be in excellent state for further use here. The woodcut of the chestnut spandril (vol. i. p. 141) is copied from one which may also be found in "The Oxford Museum." The facsimile of part of one of the letters is not quite satisfactory, the lines being somewhat thicker than they should be, but it answers its present purpose.

Lastly, the chief difficulty of editing these letters has been in regard to the notes, and has lain not so much in obtaining the necessary information as in deciding what use to make of it when obtained. The first point was, of course, to put the reader of the present volumes in possession of every fact which would have been common knowledge at the time when such and such a letter was written; but beyond this there were various allusions, which might be thought to need explanation; quotations, the exact reference to which might be convenient; and so forth. Some notes, therefore, of this character have been also added; whilst some few which were omitted, either intentionally or by accident, from the body of the work, may be found on reference to the index.[1]

The effort to make the book complete has induced the notice of slight variations of text in one or two cases, especially in the reprint of the St. Mark's Circular. The space occupied by such notes is small, the interest which a few students take

[1] Some of the notes, it will be remarked, are in larger type than the rest; these are Mr. Ruskin's original notes to the letters as first published, and are in fact part of them; and they are so printed to distinguish them from the other notes, for which I am responsible.

in the facts they notice really great, and the appearance of pedantry to some readers is thus risked in order to meet the special wish of others. The same effort will account for the reappearance of one or two really unimportant letters in the Appendix to the second volume, which contains also some few letters the nature of which is rather personal than public.

I have asked Mr. Ruskin to state in his preface to the book the value he may set upon it in relation to his other and more connected work ; and for the rest, I have only to add that the editing of it has been the pleasant labor of my leisure for more than two years past, and to express my hope that these scattered arrows, some from the bow of "An Oxford Graduate," some from that of an Oxford Professor, may not have been vainly winged anew by

AN OXFORD PUPIL.

October, 1880.

NOTE.—*In the second and third columns the bracketed words and figures are more or*

TITLE OF LETTER.	WHERE WRITTEN
A Landslip near Giagnano	Naples
Modern Painters: a Reply	[Denmark Hill
Art Criticism	[Denmark Hill
On Reflections in Water	[Denmark Hill
Danger to the National Gallery	[Denmark Hill]
The Pre-Raphaelite Brethren, I.	Denmark Hill
The Pre-Raphaelite Brethren, II.	Denmark Hill
The National Gallery	Herne Hill, Dulwich
"The Light of the World"	Denmark Hill
"The Awakening Conscience"	[Denmark Hill
The Turner Bequest	Denmark Hill
On the Gentian	Denmark Hill
The Turner Bequest & National Gallery	[Denmark Hill
The Castle Rock (Edinburgh)	Dunbar
The Arts as a Branch of Education	Penrith
Edinburgh Castle	Penrith
The Character of Turner	[
Pre-Raphaelitism in Liverpool	[
Generalization & Scotch Pre-Raphaelites	[
Gothic Architecture & Oxford Museum, I.	[
The Turner Sketches and Drawings	[
Turner's Sketch Book (extract)	[
The Liber Studiorum (extract)	[
Gothic Architecture & Oxford Museum, II.	[
The Turner Gallery at Kensington	Denmark Hill
Mr. Thornbury's "Life of Turner" (extract)	Lucerne
Art Teaching by Correspondence	Denmark Hill
On the Reflection of Rainbows	[ ]
The Conformation of the Alps	Denmark Hill
Concerning Glaciers	Denmark Hill
English *versus* Alpine Geology	Denmark Hill
Concerning Hydrostatics	Norwich
The British Museum	Denmark Hill
Copies of Turner's Drawings (extract)	[
Notre Dame de Paris	[Denmark Hill
"Turners," False and True	Denmark Hill
Castles and Kennels	Denmark Hill
Verona *v.* Warwick	Denmark Hill, S. E.
Mr. Ruskin's Influence: a Defence	[Denmark Hill
Mr. Ruskin's Influence: a Rejoinder	[Denmark Hill
John Leech's Outlines	[
Ernest George's Etchings	[Denmark Hill
James David Forbes: his Real Greatness	[
The Frederick Walker Exhibition	[
Copies of Turner's Drawings	Peterborough
Turner's Drawings, I.	Brantwood
Turner's Drawings, II.	Brantwood, Coniston, Lancashire
Modern Restoration	Venice
Ribbesford Church	Brantwood, Coniston, Lancashire
St. Mark's, Venice—Circular relating to	[Brantwood
St. Mark's, Venice—Letters	[Brantwood
On the Purchase of Pictures	[Brantwood
Copy of Turner's "Fluelen"	London
The Study of Natural History	[ ]

less certainly conjectured; whilst those unbracketed give the actual dating of the letter.

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VOLUME ONE

LETTERS ON ART AND SCIENCE

ARROWS OF THE CHACE.

LETTERS ON ART.

I.—ART CRITICISM AND ART EDUCATION.

[From "The Weekly Chronicle," September 23, 1843.]

"MODERN PAINTERS"; A REPLY.

To the Editor of "The Weekly Chronicle."

SIR: I was much gratified by reading in your columns of the 15th[1] instant a piece of close, candid, and artistical criticism on my work entitled "Modern Painters." Serious and well-based criticism is at the present day so rare, and our periodicals are filled so universally with the splenetic jargon or meaningless praise of ignorance, that it is no small pleasure to an author to meet either with praise which he can view with patience, or censure which he can regard with respect. I seldom, therefore, read, and have never for an instant thought of noticing, the ordinary animadversions of the press; but the critique on "Modern Painters" in your pages is evidently the work of a man both of knowledge and feeling; and is at once so candid and so keen, so honest and so subtle, that I am desirous of offering a few remarks on the points on which it principally touches—they are of importance to art; and I feel convinced that the writer is desirous only of elucidating truth, not of upholding a favorite error. With respect first to Gas-

[1] It should be the 16th, the criticism having appeared in the preceding weekly issue.

par's painting of the "Sacrifice of Isaac." It is not on the faith of any *single* shadow that I have pronounced the time intended to be near noon [1]—though the shadow of the two figures being very short, and cast *from* the spectator, is in itself conclusive. The whole system of chiaroscuro of the picture is lateral; and the light is expressly shown not to come from the distance by its breaking brightly on the bit of rock and waterfall on the left, from which the high copse wood altogether intercepts the rays proceeding from the horizon. There are multitudes of pictures by Gaspar with this same effect—leaving no doubt whatever on my mind that they are all manufactured by the same approved recipe, probably given him by Nicholas, but worked out by Gaspar with the clumsiness and vulgarity which are invariably attendant on the efforts of an inferior mind to realize the ideas of a greater. The Italian masters universally make the horizon the chief light of their picture, whether the effect intended be of noon or evening. Gaspar, to save himself the trouble of graduation, washes his sky half blue and half yellow, and separates the two colors by a line of cloud. In order to get his light conspicuous and clear, he washes the rest of his sky of a dark deep blue, without any thoughts about time of day or elevation of sun, or any such minutiæ; finally, having frequently found the convenience of a black foreground, with a bit of light coming in round the corner, and probably having no conception of the possibility of painting a foreground on any other principle, he naturally falls into the usual method—blackens it all over, touches in a few rays of lateral light, and turns out a very respectable article; for in such language only should we express the completion of a picture painted throughout on conventional principles, without one reference to nature, and without one idea

[1] See Modern Painters, vol. i. p. 229 (Pt. II. § 2, cap. 2, § 5). "Again, take any important group of trees, I do not care whose,—Claude's, Salvator's, or Poussin's,—with lateral light (that in the Marriage of Isaac and Rebecca, or Gaspar's Sacrifice of Isaac, for instance); can it be supposed that those murky browns and melancholy greens are representative of the tints of leaves under full noonday sun?" The picture in question is, it need hardly be said, in the National Gallery (No. 31).

of the painter's own. With respect to Salvator's "Mercury and the Woodman,"[1] your critic has not allowed for the effect of time on its blues. They are now, indeed, sobered and brought down, as is every other color in the picture, until it is scarcely possible to distinguish any of the details in its darker parts; but they *have been* pure and clean, and the mountain is absolutely the same color as the open part of the sky. When I say it is "in full light," I do not mean that it is the highest light of the picture (for no distant mountain *can* be so, when compared with bright earth or white clouds), but that no accidental shadow is cast upon it; that it is under open sky, and so illumined that there must necessarily be a difference in hue between its light and dark sides, at which Salvator has not even hinted.

Again, with respect to the question of focal distances,[2] your critic, in common with many very clever people to whom I have spoken on the subject, has confused the obscurity of objects which are *laterally* out of the focal *range*, with that of objects which are *directly* out of the focal *distance*. If all objects in a landscape were in the same plane, they should be represented on the plane of the canvas with equal distinctness,

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[1] See Modern Painters, vol. i., pp. 227–28 (Pt. II. § ii., cap. 2, § 4). The critic of the Chronicle had written that the rocky mountains in this picture "are *not* sky-blue, neither are they near enough for detail of crag to be seen, neither are they in full light, but are quite as indistinct as they would be in nature, and just the color." The picture is No. 84 in the National Gallery.

[2] See Modern Painters, vol. i. pp. 260–61 (Pt. II. § ii. cap. 4, § 6). "Turner introduced a new era in landscape art, by showing that the foreground might be sunk for the distance, and that it was possible to express immediate proximity to the spectator, without giving anything like completeness to the forms of the near objects. This, observe, is not done by slurred or soft lines (always the sign of vice in art), but by a decisive imperfection, a firm but partial assertion of form, which the eye feels indeed to be close home to it, and yet cannot rest upon, nor cling to, nor entirely understand, and from which it is driven away of necessity to those parts of distance on which it is intended to repose." To this the critic of the Chronicle had objected, attempting to show that it would result in Nature being "represented with just half the quantity of light and color that she possesses."

because the eye has no greater lateral range on the canvas than in the landscape, and can only command a point in each. But this point in the landscape may present an intersection of lines belonging to different distances—as when a branch of a tree, or tuft of grass, cuts against the horizon: and yet these different distances cannot be discerned together: we lose one if we look at the other, so that no painful intersection of lines is ever felt. But on the canvas, as the lines of foreground and of distance are on the *same* plane, they *will* be seen together whenever they intersect, painfully and distinctly; and, therefore, unless we make one series, whether near or distant, obscure and indefinite, we shall always represent as visible at once that which the eye can only perceive by two separate acts of seeing. Hold up your finger before this page, six inches from it. If you look at the edge of your finger, you cannot see the letters; if you look at the letters, you cannot see the edge of your finger, but as a confused, double, misty line. Hence in painting, you must either take for your subject the finger or the letters; you cannot paint both distinctly without violation of truth. It is of no consequence how quick the change of the eye may be; it is not one whit quicker than its change from one part of the horizon to another, nor are the two intersecting distances more visible at the same time than two opposite portions of a landscape to which it passes in succession. Whenever, therefore, in a landscape, we look from the foreground to the distance, the foreground is subjected to *two* degrees of indistinctness: the first, that of an object *laterally* out of the focus of the eye; and the *second*, that of an object *directly* out of the focus of the eye; being too near to be seen with the focus adapted to the distance. In the picture, when we look from the foreground to the distance, the foreground is subjected only to *one* degree of indistinctness, that of being out of the lateral range; for as both the painting of the distance and of the foreground are on the same plane, they are seen together with the same focus. Hence we must supply the *second* degree of indistinctness by slurring with the brush, or we shall have a severe and painful intersection of near and distant lines, impossible in

nature. Finally, a very false principle is implied by part of what is advanced by your critic—which has led to infinite error in art, and should therefore be instantly combated whenever it were hinted—that the ideal is different from the true. It is, on the contrary, only the perfection of truth. The Apollo is not a *false* representation of man, but the most perfect representation of all that is constant and essential in man—free from the accidents and evils which corrupt the truth of his nature.[1] Supposing we are describing to a naturalist some animal he does not know, and we tell him we saw one with a hump on its back, and another with strange bends in its legs, and another with a long tail, and another with no tail, he will ask us directly, But what is its *true* form, what is its *real* form? This truth, this reality, which he requires of us, is the *ideal* form, that which is hinted at by all the individuals—aimed at, but not arrived at. But never let it be said that, when a painter is defying the principles of nature at every roll of his brush, as I have shown that Gaspar does, when, instead of working out the essential characters of specific form, and raising those to their highest degree of nobility and beauty, he is casting all character aside, and carrying out imperfection and accident; never let it be said, in excuse for such degradation of nature, that it is done in pursuit of the ideal. As well might this be said in defence of the promising sketch of the human form pasted on the wainscot behind the hope of the family—artist and musician of equal power—in the "Blind Fiddler."[2] Ideal beauty is the generalization of

[1] The passage in the Chronicle ran thus: "The Apollo is but an ideal of the human form; no figure ever moulded of flesh and blood was like it." With the objection to this criticism we may compare Modern Painters (vol. i., where the ideal is defined as "the utmost degree of beauty of which the species is capable." See also vol. ii.: "The perfect *idea* of the form and condition in which all the properties of the species are fully developed is called the Ideal of the species;" and "That unfortunate distinctness between Idealism and Realism which leads most people to imagine that the Ideal is opposed to the Real, and therefore false."

[2] This picture of Sir David Wilkie's was presented to the National Gallery (No. 99) by Sir George Beaumont, in 1826.

consummate knowledge, the concentration of perfect truth—not the abortive vision of ignorance in its study. Nor was there ever yet one conception of the human mind beautiful, but as it was based on truth. Whenever we leave nature, we fall immeasurably beneath her. So, again, I find fault with the "ropy wreath" of Gaspar,[1] not because he chose massy cloud instead of light cloud; but because he has drawn his massy cloud *falsely*, making it look tough and powerless, like a chain of Bologna sausages, instead of gifting it with the frangible and elastic vastness of nature's mountain vapor.

Finally, Sir, why must it be only "when he is gone from us"[2] that the power of our greatest English landscape painter is to be acknowledged? It cannot, indeed, be fully understood until the current of years has swept away the minor lights which stand around it, and left it burning alone; but at least the scoff and the sneer might be lashed into silence, if those only did their duty by whom it is already perceived. And let us not think that our unworthiness has no effect on the work of the master. I could be patient if I thought that *no* effect was wrought on his noble mind by the cry of the populace; but, scorn it as he may, and does, it is yet impossible for any human mind to hold on its course, with the same energy and life, through the oppression of a perpetual hissing, as when it is cheered on by the quick sympathy of its fellow-men. It is not in art as in matters of political duty, where the path is clear and the end visible. The springs of feeling may be oppressed or sealed by the want of an answer in other bosoms, though the sense of principle cannot be blunted except by the individual's *own* error; and though the knowledge of what is right, and the love of what is beautiful, may

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[1] The bank of cloud in the "Sacrifice of Isaac" is spoken of in Modern Painters (vol. i., p. 304, Pt. II., § iii., cap. 3, § 7), as "a ropy, tough-looking wreath." On this the reviewer commented.

[2] "We agree," wrote the Chronicle, "with the writer in almost every word he says about this great artist; and we have no doubt that, when he is gone from among us, his memory will receive the honor due to his living genius." See also the postscript to the first volume of Modern Painters, written in June, 1851.

still support our great painter through the languor of age—and Heaven grant it may for years to come—yet we cannot hope that he will ever cast his spirit upon the canvas with the same freedom and fire as if he felt that the voice of its inspiration was waited for among men, and dwelt upon with devotion. Once, in ruder times, the work of a great painter * was waited for through days at his door, and attended to its place of deposition by the enthusiasm of a hundred cities; and painting rose from that time, a rainbow upon the Seven Hills, and on the cypressed heights of Fiésole, guiding them and lighting them forever, even in the stillness of their decay. How can we hope that England will ever win for herself such a crown, while the works of her highest intellects are set for the pointing of the finger and the sarcasm of the tongue, and the sole reward for the deep, earnest, holy labor of a devoted life, is the weight of stone upon the trampled grave, where

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* Cimabue. The quarter of the town is yet named, from the rejoicing of that day, Borgo Allegri.[1] (*Original note to the letter: see editor's preface.*)

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* The picture thus honored was that of the Virgin, painted for the Church of Santa Maria Novella, where it now hangs in the Rucellai Chapel. "This work was an object of so much admiration to the people, . . . that it was carried in solemn procession, with the sound of trumpets and other festal demonstrations, from the house of Cimabue to the church, he himself being highly rewarded and honored for it. It is further reported, and may be read in certain records of old painters, that whilst Cimabue was painting this picture in a garden near the gate of San Pietro, King Charles the Elder, of Anjou, passed through Florence, and the authorities of the city, among other marks of respect, conducted him to see the picture of Cimabue. When this work was shown to the king, it had not before been seen by any one; wherefore all the men and women of Florence hastened in great crowds to admire it, making all possible demonstrations of delight. The inhabitants of the neighborhood, rejoicing in this occurrence, ever afterwards called that place Borgo Allegri; and this name it has since retained, although in process of time it became enclosed within the walls of the city—Vasari, Lives of Painters. Bohn's edition. London, 1850. Vol. i. p. 41. This well-known anecdote may also be found in Jameson's Early Italian Painters, p. 12.

the vain and idle crowd will come to wonder how the brushes are mimicked in the marble above the dust of him who wielded them in vain?

I have the honor to be, Sir,
Your most obedient servant,
THE AUTHOR OF "MODERN PAINTERS."

[From the "Artist and Amateur's Magazine" (edited by E. V. Rippingille), January, 1843, pp. 280–287.]

ART CRITICISM.

To the Editor of the "Artist and Amateur's Magazine."

SIR—Anticipating, with much interest, your reply to the candid and earnest inquiries of your unknown correspondent, Matilda Y.,[1] I am led to hope that you will allow me to have some share with you in the pleasant task of confirming an honest mind in the truth. Subject always to your animadversion and correction, so far as I may seem to you to be led astray by my peculiar love for the works of the artist to whom her letter refers, I yet trust that in most of the remarks I have to make on the points which have perplexed her, I shall be expressing not only your own opinions, but those of every other accomplished artist who is really acquainted—and which of our English masters is not?—with the noble system of

[1] This letter was written in reply to one signed "Matilda Y.," which had been printed in the Artist and Amateur's Magazine, p. 265, December, 1843, and which related to the opposite opinions held by different critics of the works of Turner, which were praised by some as "beautiful and profoundly truthful representations of nature," whilst others declared them to be "executed without end, aim, or principle." "May not these contradictions," wrote the correspondent, in the passage alluded to by Mr. Ruskin, "be in a great measure the result of extreme ignorance of art in the great mass of those persons who take upon themselves the office of critics and reviewers? Can any one be a judge of art whose judgment is not founded on an accurate knowledge of nature? It is scarcely possible that a mere knowledge of pictures, however extensive, can qualify a man for the arduous and responsible duties of public criticism of art."

poetry and philosophy which has been put forth on canvas, during the last forty years, by the great painter who has presented us with the almost unparalleled example of a man winning for himself the unanimous plaudits of his generation and time, and then casting them away like dust, that he may build his monument—ære perennius.

Your correspondent herself, in saying that mere knowledge of *pictures* cannot qualify a man for the office of a critic, has touched the first source of the schisms of the present, and of all time, in questions of pictorial merit. We are overwhelmed with a tribe of critics who are fully imbued with every kind of knowledge which is useful to the picture-dealer, but with none that is important to the artist. They know where a picture *has* been retouched, but not where it *ought* to have been; they know if it has been injured, but not if the injury is to be regretted. They are unquestionable authorities in all matters relating to the panel or the canvas, to the varnish or the vehicle, while they remain in entire ignorance of that which the vehicle conveys. They are well acquainted with the technical qualities of every master's touch; and when their discrimination fails, plume themselves on indisputable tradition, and point triumphantly to the documents of pictorial genealogy. But they never go *quite* far enough back; they stop *one* step short of the real original; they reach the human one, but never the Divine. Whatever, under the present system of study, the connoisseur of the gallery may learn or know, there is one thing he does *not* know—and that is nature. It is a pitiable thing to hear a man like Dr. Waagen,[1] about to set

[1] Gustav Friedrich Waagen, Director of the Berlin Gallery from 1832 until his death in 1868. He was the author of various works on art, amongst them one entitled Works of Art and Artists in England (London, 1838), which is that alluded to here. The passage quoted concludes a description of his "first attempt to navigate the watery paths," in a voyage from Hamburg to the London Docks (vol. i. p. 13). His criticism of Turner may be found in the same work (vol. ii. p 80), where commenting on Turner's "Fishermen endeavoring to put their fish on board," then, as now, in the gallery of Bridgewater House (No. 169), and which was painted as a rival to the great sea-storm of Vandevelde, he writes, that "in the truth of clouds and waves" . . . it is inferior

the seal of his approbation, or the brand of his reprobation, on all the pictures in our island, expressing his insipid astonishment on his first acquaintance with the sea. "For the *first* time I understood the truth of their pictures (Backhuysen's and Van de Velde's), and the refined art with which, by intervening dashes of sunshine, near or at a distance, and *ships to animate the scene*, they produce such a charming variety on the surface of the sea." For the first time!—and yet this gallery-bred judge, this discriminator of colored shreds and canvas patches, who has no idea how ships animate the sea, until—charged with the fates of the Royal Academy—he ventures his invaluable person from Rotterdam to Greenwich, will walk up to the work of a man whose brow is hard with the spray of a hundred storms, and characterize it as "wanting in truth of clouds and waves"! Alas for Art, while such judges sit enthroned on their apathy to the beautiful, and their ignorance of the true, and with a canopy of canvas between them and the sky, and a wall of tradition, which may not be broken through, concealing from them the horizon, hurl their darkened verdicts against the works of men, whose night and noon have been wet with the dew of heaven—dwelling on the deep sea, or wandering among the solitary places of the earth, until they have "made the mountains, waves, and skies a part of them and of their souls."

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to that picture, compared with which "it appears like a successful piece of scene-painting. The great crowd of amateurs, who ask nothing more of the art, will always far prefer Turner's picture." Dr. Waagen revised and re-edited his book in a second, entitled, Treasures of Art in Great Britain (1854), in which these passages are repeated with slight verbal alterations (vol. i. p. 3, vol. ii. p. 53). In this work he acknowledges his ignorance of Turner at the time the first was written, and gives a high estimate of his genius. "Buildings," he writes, "he treats with peculiar felicity, while *the sea* in its most varied aspects *is equally subservient to his magic brush*"!! He adds, that but for one deficiency, the want of a sound technical basis, he "should not hesitate to recognize Turner as the greatest landscape painter of all time"! With regard, however, to the above-named picture, it may be remembered that Mr. Ruskin has himself instanced it as one of the marine pictures which Turner spoiled by imitation of Vandevelde (Pre-Raphaelitism, p. 45).

When information so narrow is yet the whole stock in trade of the highest authorities of the day, what are we to expect from the lowest? Dr. Waagen is a most favorable specimen of the tribe of critics; a man, we may suppose, impartial, above all national or party prejudice, and intimately acquainted with that half of his subject (the technical half) which is all we can reasonably expect to be known by one who has been trained in the painting-room instead of in the fields. No authority is more incontrovertible in all questions of the genuineness of old pictures. He has at least the merit—not common among those who talk most of the old masters—of knowing what he *does* admire, and will not fall into the same raptures before an execrable copy as before the original. If, then, we find a man of this real judgment in those matters to which his attention has been directed, entirely incapable, owing to his ignorance of nature, of estimating a modern picture, what can we hope from those lower critics who are unacquainted even with those technical characters which they have opportunities of learning? What, for instance, are we to anticipate from the sapient lucubrations of the critic—for some years back the disgrace of the pages of "Blackwood"—who in one breath displays his knowledge of nature, by styling a painting of a furze bush in the bed of a mountain torrent a specimen of the "high pastoral," and in the next his knowledge of Art, by informing us that Mr. Lee "reminds him of Gainsborough's best manner, but is inferior to him in composition"![1] We do not mean to say anything against Mr. Lee; but can we forbear to smile at the hopeless innocence of the man's novitiate, who could be reminded by them of landscapes powerful enough in color to take their place beside those of Rembrandt or Rubens? A little attention will soon convince your correspondent of the utter futility or falsehood of the ordinary critiques of the press; and there could, I believe, even at present be little doubt in her mind as to the fitting answer to the question, whether we are to take the opinion of the accom-

[1] See the Preface to the second edition of Modern Painters (vol. i. p. xix., etc.) Frederick Richard Lee, R.A., died in June, 1879.

plished artist or of the common newsmonger, were it not for a misgiving which, be she conscious of it or not, is probably floating in her mind—whether that can really be *great* Art which has no influence whatsoever on the multitude, and is appreciable only by the initiated few. And this is the real question of difficulty. It is easy to prove that such and such a critic is wrong; but not so, to prove that what everybody dislikes is right. It is fitting to pay respect to Sir Augustus Callcott, but is it so to take his word against all the world?

This inquiry requires to be followed with peculiar caution; for by setting at defiance the judgment of the public, we in some sort may appear to justify that host of petty scribblers, and contemptible painters, who in all time have used the same plea in defence of their rejected works, and have received in consequence merciless chastisement from contemporary and powerful authors or painters, whose reputation was as universal as it was just. "Mes ouvrages," said Rubens to his challenger, Abraham Janssens, "ont été exposés en Italie, et en Espagne, sans que j'aie reçu la nouvelle de leur condamnation. Vous n'avez qu'à soumettre les votres à la même épreuve."[1] "Je défie," says Boileau, "tous les amateurs les plus mécontents du public, de me citer un bon livre que le public ait jamais rebuté, à moins qu'ils ne mettent en ce rang leur écrits, de la bonté desquels eux seuls sont persuadés."

Now the fact is, that the whole difficulty of the question is caused by the ambiguity of this word—the "public." Whom does it include? People continually forget that there is a *separate* public for every picture, and for every book. Appealed to with reference to any particular work, the public is that class of persons who possess the knowledge which it pre-

[1] Abraham Janssens, in his jealousy of Rubens, proposed to him that they should each paint a picture, and submit the rival works to the decision of the public. Mr. Ruskin gives Rubens' reply, the tenor of which may be found in any life of the artist. See Hasselt's Histoire de Rubens (Brussels, 1840), p. 48, from which Mr. Ruskin quotes; Descamps, vol. i. p. 304; Walpole's Anecdotes of Painting, Bohn's octavo edition, p. 306.

supposes, and the faculties to which it is addressed. With reference to a new edition of Newton's Principia, the "public" means little more than the Royal Society. With reference to one of Wordsworth's poems, it means all who have hearts. With reference to one of Moore's, all who have passions. With reference to the works of Hogarth, it means those who have worldly knowledge—to the works of Giotto, those who have religious faith. Each work must be tested exclusively by the fiat of the *particular* public to whom it is addressed. We will listen to no comments on Newton from people who have no mathematical knowledge; to none on Wordsworth from those who have no hearts; to none on Giotto from those who have no religion. Therefore, when we have to form a judgment of any new work, the question "What do the public say to it?" is indeed of vital importance; but we must always inquire, first, who are *its* public? We must not submit a treatise on moral philosophy to a conclave of horse-jockeys, nor a work of deep artistical research to the writers for the Art Union.

The public, then, we repeat, when referred to with respect to a particular work, consist only of those who have knowledge of its subject, and are possessed of the faculties to which it is addressed.

If it fail of touching *these*, the work is a bad one; but it in no degree militates against it that it is rejected by those to whom it does not appeal. To whom, then, let us ask, and to *what* public do the works of Turner appeal? To those only we reply, who have profound and disciplined acquaintance with nature, ardent poetical feeling, and keen eye for color (a faculty far more rare than an ear for music). They are deeply-toned poems, intended for all who love poetry, but not for those who delight in mimicries of wine-glasses and nut-shells. They are deep treatises on natural phenomena, intended for all who are acquainted with such phenomena, but not for those who, like the painter Barry, are amazed at finding the realities of the Alps grander than the imaginations of Salvator, and assert that they saw the moon from the Mont Cenis four times as big as usual, "from being so much nearer

to it"!* And they are studied melodies of exquisite color, intended for those who have perception of color; not for those who fancy that all trees are Prussian green. Then comes the question, Were the works of Turner *ever* rejected by any person possessing even partially these qualifications? We answer boldly, never. On the contrary, they are universally hailed by *this* public with an enthusiasm not undeserving in appearance—at least to those who are debarred from sharing in it, of its usual sobriquet—the Turner mania.

Is, then, the number of those who are acquainted with the truth of nature so limited? So it has been asserted by one who knew much both of Art and Nature, and both were glorious in his country.†

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* This is a singular instance of the profound ignorance of landscape in which great and intellectual painters of the human form may remain; an ignorance, which commonly renders their remarks on landscape painting nugatory, if not false.[1]

† Plato.—"*Hippias.* Men do not commonly say so.
Socrates. Who do not say so—those who know, or those who do not know?
Hippias. The multitude.
Socrates. Are then the multitude acquainted with truth?
Hippias. *Certainly not.*"

The answer is put into the mouth of the sophist; but put as an established fact, which he cannot possibly deny.[2]

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[1] The amazement of the painter is underrated: "You will believe me much nearer heaven upon Mount Cenis than I was before, or shall probably be again for some time. We passed this mountain on Sunday last, and about seven in the morning were near the top of the road over it, on both sides of which the mountain rises to a very great height, yet so high were we in the valley between them that the moon, which was above the horizon of the mountains, appeared at least five times as big as usual, and much more distinctly marked than I ever saw it through some very good telescopes."—Letter to Edmund Burke, dated Turin, Sept. 24, 1766. Works of James Barry, R.A., 2 vols., quarto (London, 1809), vol. i. p. 58. He died in 1806.

[2] Plato: Hippias Major, 284 E. Steph.

"ΙΠ. Οὐ μέντοι εἰώθασιν ἄνθρωποι ὀνομάζειν οὕτως.
ΣΩ. Πότερον, ὦ Ἵππια, οἱ εἰδότες ἢ οἱ μὴ εἰδότες;
ΙΠ. Οἱ πολλοί.
ΣΩ. Εἰσὶ δ' οὗτοί οἱ εἰδότες ταληθές, οἱ πολλοί;
ΙΠ. Οὐ δῆτα."

HIPPIAS MAJOR.

Now, we are not inclined to go quite so far as this. There are many subjects with respect to which the multitude *are* cognizant of truth, or at least of *some* truth ; and those subjects may be generally characterized as everything which materially concerns themselves or their interests. The public are acquainted with the nature of their own passions and the point of their own calamities—can laugh at the weakness they feel, and weep at the miseries they have experienced ; but all the sagacity they possess, be it how great soever, will not enable them to judge of likeness to that which they have never seen, nor to acknowledge principles on which they have never reflected. Of a comedy or a drama, an epigram or a ballad, they are judges from whom there is no appeal ; but not of the representation of facts which they have never examined, of beauties which they have never loved. It is not sufficient that the facts or the features of nature be around us, while they are not within us. We may walk day by day through grove and meadow, and scarcely know more concerning them than is known by bird and beast, that the one has shade for the head, and the other softness for the foot. It is not true that "the eye, it cannot choose but see," unless we obey the following condition, and go forth "in a wise passiveness,"[1] free from that plague of our own hearts which brings the shadow of ourselves, and the tumult of our petty interests and impatient passions, across the light and calm of Nature. We do not sit at the feet of our mistress to listen to her teachings ; but we seek her only to drag from her that which may suit our purpose, to see in her the confirmation of a theory, or find in her fuel for our pride. Nay, do we often go to her

[1] Wordsworth. Poems of Sentiment and Reflection. i. Expostulation and Reply.

even thus? Have we not rather cause to take to ourselves the full weight of Wordsworth's noble appeal—

> "Vain pleasures of luxurious life!
> Forever with yourselves at strife,
> Through town and country, both deranged
> By affections interchanged,
> And all the perishable gauds
> That heaven-deserted man applauds.
> When will your hapless patrons learn
> To watch and ponder, to discern
> The freshness, the eternal youth
> Of admiration, sprung from truth,
> From beauty infinitely growing
> Upon a mind with love o'erflowing:
> To sound the depths of every art
> That seeks its wisdom through the heart?"[1]

When *will* they learn it? Hardly, we fear, in this age of steam and iron, luxury and selfishness. We grow more and more artificial day by day, and see less and less worthiness in those pleasures which bring with them no morbid excitement, in that knowledge which affords us no opportunity of display. Your correspondent may rest assured that those who do not *care* for nature, who do not love her, *cannot* see her. A few of her phenomena lie on the surface; the nobler number lie deep, and are the reward of watching and of thought. The artist may choose *which* he will render: no human art can render both. If he paint the surface, he will catch the crowd; if he paint the depth, he will be admired only—but with how deep and fervent admiration, none but they who feel it can tell—by the thoughtful and observant few.

There are some admirable observations on this subject in your December number ("An Evening's Gossip with a Painter"[2]);

[1] Memorials of a Tour in Scotland. 1814. iii. Effusion.

[2] See the Artist and Amateur's Magazine, p. 248. The article named was written in dialogue, and in the passage alluded to "Palette," an artist, points out to his companion "Chatworthy," who represents the general public, that "next to the highest authorities in Art are the pure, natural, untainted, highly educated, and intelligent *few*." The argument is continued over some pages, but although the Magazine is not now readily accessible to the ordinary reader, it will not be thought necessary to go further into the discussion.

but there is one circumstance with respect to the works of Turner which yet further limits the number of their admirers. They are not prosaic statements of the phenomena of nature—they are statements of them under the influence of ardent feeling; they are, in a word, the most fervent and real poetry which the English nation is at present producing. Now not only is this proverbially an age in which poetry is little cared for; but even with those who have most love of it, and most need of it, it requires, especially if high and philosophical, an attuned, quiet, and exalted frame of mind for its enjoyment; and if dragged into the midst of the noisy interests of every-day life, may easily be made ridiculous or offensive. Wordsworth recited, by Mr. Wakley, in the House of Commons, in the middle of a financial debate, would sound, in all probability, very like Mr. Wakley's [1] own verses. Wordsworth, read in the stillness of a mountain hollow, has the force of the mountain waters. What would be the effect of a passage of Milton recited in the middle of a pantomime, or of a dreamy stanza of Shelley upon the Stock Exchange? Are we to judge of the nightingale by hearing it sing in broad daylight in Cheapside? For just such a judgment do we form of Turner by standing before his pictures in the Royal Academy. It is a strange thing that the public never seem to suspect that there may be a poetry in painting, to meet which, some preparation of sympathy, some harmony of circumstance, is required; and that it is just as impossible to see half a dozen great pictures as to read half a dozen great poems at the same time, if their tendencies or their tones of feeling be contrary or discordant. Let us imagine what would be the effect on the mind of any man of feeling, to whom an eager friend, desirous of impressing upon him the merit of different poets, should read successively, and without a pause, the following

[1] Mr. Thomas Wakley, at this time M.P. for Finsbury, and coroner for Middlesex. He was the founder of the Lancet, and took a deep interest in medicine, which he at one time practised. I do not find, however, that he published any volume of poems, though he may well have been the author, as the letter seems to imply, of some occasional verses. He died in 1862.

passages, in which lie something of the prevailing character of the works of six of our greatest modern artists:

LANDSEER.

"His hair, his size, his mouth, his lugs,
Show'd he was nane o' Scotland's dougs,
But whalpit some place far abroad
Whar sailors gang to fish for cod."[1]

MARTIN.

"Far in the horizon to the north appear'd,
From skirt to skirt, a fiery region, stretched
In battailous aspect, and nearer view
Bristled with upright beams innumerable
Of rigid spears, and helmets throng'd, and shields
Various, with boastful argument portray'd."

WILKIE.

"The risin' moon began to glowr
The distant Cumnock hills out owre;
To count her horns, wi' a' my pow'r,
I set mysel';
But whether she had three or fowr,
I couldna tell."

EASTLAKE.

"And thou, who tell'st me to forget,
Thy looks are wan, thine eyes are wet."

STANFIELD.

"Ye mariners of England,
Who guard our native seas,
Whose flag has braved a thousand years
The battle and the breeze."

TURNER.

"The point of one white star is quivering still,
Deep in the orange light of widening dawn,
Beyond the purple mountains. Through a chasm
Of wind-divided mist the darker lake
Reflects it, now it fades: it gleams again,

[1] The references to this and the five passages following are (1) Burns, The Twa Dogs; (2) Milton, Paradise Lost, vi. 79; (3) Burns, Death and Doctor Hornbook; (4) Byron, Hebrew Melodies, Oh! snatched away in beauty's bloom; (5) Campbell; and (6) Shelley, Prometheus Unbound, Act. ii. sc. 1.

As the waves fall, and as the burning threads
Of woven cloud unravel in pale air,
'Tis lost! and through yon peaks of cloud-like snow
The roseate sunlight quivers."

Precisely to such advantage as the above passages, so placed,[1] appear, are the works of any painter of mind seen in the Academy. None suffer more than Turner's, which are not only interfered with by the prosaic pictures around them, but neutralize each other. Two works of his, side by side, destroy each other to a dead certainty, for each is so vast, so complete, so demandant of every power, so sufficient for every desire of the mind, that it is utterly impossible for two to be comprehended together. Each must have the undivided intellect, and each is destroyed by the attraction of the other; and it is the chief power and might of these pictures, that they are works for the closet and the heart—works to be dwelt upon separately and devotedly, and then chiefly when the mind is in its highest tone, and desirous of a beauty which may be food for its immortality. It is the very stamp and essence of the purest poetry, that it can only be so met and understood; and that the clash of common interests, and the roar of the selfish world, must be hushed about the heart, before it can hear the still, small voice, wherein rests the power communicated from the Holiest.*

Can, then,—will be, if I mistake not, the final inquiry of

[1] It will be felt at once that the more serious and higher passages generally suffer most. But Stanfield, little as it may be thought, suffers grievously in the Academy, just as the fine passage from Campbell is ruined by its position between the perfect tenderness of Byron and Shelley. The more vulgar a picture is, the better it bears the Academy.

* Although it is in verse that the most consummate skill in composition is to be looked for, and all the artifices of language displayed, yet it is in verse only that we throw off the yoke of the world, and are, as it were, privileged to utter our deepest and holiest feelings. Poetry in this respect may be called the salt of the earth. We express in it, and receive in it, sentiments for which, were it not for this permitted medium, the usages of the world would neither allow utterance

your correspondent,—can, then, we ordinary mortals,—can I, who am not Sir Augustus Callcott, nor Sir Francis Chantrey, ever derive any pleasure from works of this lofty character? Heaven forbid, we reply, that it should be otherwise. *Nothing* more is necessary for the appreciation of them, than that which is necessary for the appreciation of any great writer—the quiet study of him with an humble heart. There are, indeed, technical qualities, difficulties overcome and principles developed, which are reserved for the enjoyment of the artist; but these do not add to the influence of the picture. On the contrary, we must break through its charm, before we can comprehend its means, and "murder to dissect." The picture is intended, not for artists alone, but for all who love what it portrays; and so little doubt have we of the capacity of all to understand the works in question, that we have the most confident expectation, within the next fifty years, of seeing the name of Turner placed on the same impregnable height with that of Shakespeare.[1] Both have committed errors of taste

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nor acceptance."—*Southey's Colloquies.*[2] Such allowance is never made to the painter. In him, inspiration is called insanity—in him, the sacred fire, possession.

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[1] "This Turner, of whom you have known so little while he was living among you, will one day take his place beside Shakespeare and Verulam, in the annals of the light of England.

"Yes: beside Shakespeare and Verulam, a third star in that central constellation, round which, in the astronomy of intellect, all other stars make their circuit. By Shakespeare, humanity was unsealed to you; by Verulam the *principles* of nature; and by Turner, her *aspect.* All these were sent to unlock one of the gates of light, and to unlock it for the first time. But of all the three, though not the greatest, Turner was the most unprecedented in his work. Bacon did what Aristotle had attempted; Shakespeare did perfectly what Æschylus did partially; but none before Turner had lifted the veil from the face of nature; the majesty of the hills and forests had received no interpretation, and the clouds passed unrecorded from the face of the heavens which they adorned, and of the earth to which they ministered."—Lectures on Architecture and Painting, by John Ruskin; published 1854; pp. 180, 181.

[2] Sir Thomas More; or, Colloquies on the Progress and Prospects of Society. Colloquy xiv. (vol. ii. p. 399, in Murray's edition, 1829).

and judgment. In both it is, or will be, heresy even to feel those errors, so entirely are they overbalanced by the gigantic powers of whose impetuosity they are the result. So soon as the public are convinced, by the maintained testimony of high authority, that Turner is worth understanding, they will try to understand him; and if they try, they can. Nor are they, now, as is commonly thought, despised or defied by him. He has too much respect for them to endeavor to please them by falsehood. He will not win for himself a hearing by the betrayal of his message.

Finally, then, we would recommend your correspondent, first, to divest herself of every atom of lingering respect or regard for the common criticism of the press, and to hold fast by the authority of Callcott, Chantrey, Landseer, and Stanfield; and this, not because we would have her *slavishly* subject to any authority but that of her own eyes and reason, but because we would not have her blown about with every wind of doctrine, before she has convinced her reason or learned to use her eyes. And if she can draw at all, let her make careful studies of any natural objects that may happen to come in her way,—sticks, leaves, or stones,—and of distant atmospheric effects on groups of objects; not for the sake of the drawing itself, but for the sake of the powers of attention and accurate observation which thus only can be cultivated. And let her make the study, not thinking of this artist or of that; not conjecturing what Harding would have done, or Stanfield, or Callcott, with her subject; nor trying to draw in a bold style, or a free style, or any other style; but drawing *all* she *sees*, as far as may be in her power, earnestly, faithfully, unselectingly; and, which is perhaps the more difficult task of the two, *not* drawing what she does *not* see. Oh, if people did but know how many lines nature *suggests* without *showing*, what different art should we have! And let her never be discouraged by ill success. She will seldom have gained more knowledge than when she most feels her failure. Let her use every opportunity of examining the works of Turner; let her try to copy them, then try to copy some one else's, and observe which presents most of that kind of difficulty which she found in

copying nature. Let her, if possible, extend her acquaintance with wild natural scenery of every kind and character, endeavoring in each species of scenery to distinguish those features which are expressive and harmonious from those which are unaffecting or incongruous; and after a year or two of such discipline as this, let her judge for herself. No authority need then, or can then, be very influential with her. Her own pleasure in works of true greatness[1] will be too real, too instinctive, to be persuaded or laughed out of her. We bid her, therefore, heartily good-speed, with this final warning: Let her beware, in going to nature, of taking with her the commonplace dogmas or dicta of art. Let her not look for what is like Titian or like Claude, for composed form or arranged chiaroscuro; but believe that everything which God has made is beautiful, and that everything which nature teaches is true. Let her beware, above everything, of that wicked pride which makes man think he can dignify God's glorious creations, or exalt the majesty of his universe. Let her be humble, we repeat, and earnest. Truth was never sealed, if so sought. And once more we bid her good-speed in the words of our poet-moralist;

> "Enough of Science and of Art:
> Seal up these barren leaves;
> Come forth, and bring with you a heart
> That watches, and receives."[2]

I have the honor to be, Sir,
Your obedient humble servant,
THE AUTHOR OF "MODERN PAINTERS."

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[1] We have not sufficiently expressed our concurrence in the opinion of her friend, that Turner's modern works are his greatest. His early ones are nothing but amplifications of what others have done, or hard studies of every-day truth. His later works no one but himself could have conceived: they are the result of the most exalted imagination, acting with the knowledge acquired by *means* of his former works.

[2] Wordsworth. Poems of Sentiment and Reflection. ii. The Tables Turned (1798), being the companion poem to that quoted *ante*, p. 32. The second line should read, "Close up these barren leaves."

[From "Some Account of the Origin and Objects of the New Oxford Examinations for the Title of Associate in Arts and Certificates," by T. D. Acland, late Fellow of All Souls' College, Oxford,[1] 1858, pp. 54–60.]

THE ARTS AS A BRANCH OF EDUCATION.

PENRITH, Sept. 25, 1857.

MY DEAR SIR: I have just received your most interesting letter, and will try to answer as shortly as I can, saying nothing of what I feel, and what you must well know I should feel, respecting the difficulty of the questions and their importance; except only this, that I should not have had the boldness to answer your letter by return of post, unless, in consequence of conversations on this subject with Mr. Acland and Dr. Acland, two months ago, I had been lately thinking of it more than of any other.[2]

Your questions fall under two heads: (1) The range which an art examination can take; (2) The connection in which it should be placed with other examinations.

I think the art examination should have three objects:

(1) To put the happiness and knowledge which the study of art conveys within the conception of the youth, so that he may in after-life pursue them, if he has the gift.

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[1] This work related to University co-operation with schemes for middle-class education, and included letters from various authorities, amongst others one from Mr. Hullah on Music. The present letter was addressed to the Rev. F. Temple (now Bishop of Exeter), and was written in reply to a statement of certain points in debate between him and Mr. (now Sir Thomas) Acland. In forwarding it to his opponent, Mr. Temple wrote as follows: "The liberal arts are supreme over their sciences. Instead of the rules being despotic, the great artist usually proves his greatness by rightly setting aside rules; and the great critic is he who, while he knows the rule, can appreciate the 'law within the law' which overrides the rule. In no other way does Ruskin so fully show his greatness in criticism as in that fine inconsistency for which he has been so often attacked by men who do not see the real consistency that lies beneath."

[2] In the following year Mr. Ruskin wrote a paper for the National Association for the Promotion of Social Science, on Education in Art (Transactions, 1858, pp. 311–316), now reprinted in the eleventh volume of Mr. Ruskin's works, A Joy for Ever, pages 119–126. To this paper the reader of the present letter is referred.

(2) To enforce, as far as possible, such knowledge of art among those who are likely to become its patrons, or the guardians of its works, as may enable them usefully to fulfil those duties.

(3) To distinguish pre-eminent gift for the production of works of art, so as to get hold of all the good artistical faculty born in the country, and leave no Giotto lost among hill-shepherds.[1]

In order to accomplish the first object, I think that, according to Mr. Acland's proposal, preliminary knowledge of drawing and music should be asked for, in connection with writing and arithmetic; but not, in the preliminary examination, made to count towards distinction in other schools. I think drawing is a necessary means of the expression of certain facts of form and means of acquaintance with them, as arithmetic is the means of acquaintance with facts of number. I think the facts which an elementary knowledge of drawing enables a man to observe and note are often of as much importance to him as those which he can describe in words or calculate in numbers. And I think the cases in which mental deficiency would prevent the acquirement of a serviceable power of drawing would be found as rare as those in which no progress could be made in arithmetic. I would not desire this elementary knowledge to extend far, but the limits which I would propose are not here in question. While I feel the force of all the admirable observations of Mr. Hullah on the use of the study of music, I imagine that the cases of physical incapacity of distinguishing sounds would be too frequent to admit of musical knowledge being made a *requirement*; I would *ask* for it, in Mr. Acland's sense; but the drawing might, I think, be required, as arithmetic would be.

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[1] "Giotto passed the first ten years of his life, a shepherd-boy, among these hills (of Fiesole); was found by Cimabue, near his native village, drawing one of his sheep upon a smooth stone; was yielded up by his father, 'a simple person, a laborer of the earth,' to the guardianship of the painter, who, by his own work, had already made the streets of Florence ring with joy; attended him to Florence, and became his disciple."—Giotto and his Works in Padua, by John Ruskin, 1854. p. 12.

2. To accomplish the second object is the main difficulty. Touching which I venture positively to state:

First. That sound criticism of art is impossible to young men, for it consists principally, and in a far more exclusive sense than has yet been felt, in the recognition of the facts represented by the art. A great artist represents many and abstruse facts; it is necessary, in order to judge of his works, that all those facts should be experimentally (not by hearsay) known to the observer; whose recognition of them constitutes his approving judgment. A young man *cannot* know them.

Criticism of art by young men must, therefore, consist either in the more or less apt retailing and application of received opinions, or in a more or less immediate and dextrous use of the knowledge they already possess, so as to be able to assert of given works of art that they are true up to a certain point; the probability being then that they are true farther than the young man sees.

The first kind of criticism is, in general, useless, if not harmful; the second is that which the youths will employ who are capable of becoming critics in after years.

Secondly. All criticism of art, at whatever period of life, must be partial; warped more or less by the feelings of the person endeavoring to judge. Certain merits of art (as energy, for instance) are pleasant only to certain temperaments; and certain tendencies of art (as, for instance, to religious sentiment) can only be sympathized with by one order of minds. It is almost impossible to conceive of any mode of examination which would set the students on anything like equitable footing in such respects; but their sensibility to art may be generally tested.

Thirdly. The history of art, or the study, in your accurate words, "*about* the subject," is in no wise directly connected with the studies which promote or detect art-capacity or art-judgment. It is quite possible to acquire the most extensive and useful knowledge of the forms of art existing in different ages, and among different nations, without thereby acquiring any power whatsoever of determining respecting any of them

(much less respecting a modern work of art) whether it is good or bad.

These three facts being so, we had perhaps best consider, first, what direction the art studies of the youth should take, as that will at once regulate the mode of examination.

First. He should be encouraged to carry forward the practical power of drawing he has acquired in the elementary school. This should be done chiefly by using that power as a help in other work: precision of touch should be cultivated by map-drawing in his geography class; taste in form by flower-drawing in the botanical schools; and bone and limb drawing in the physiological schools. His art, kept thus to practical service, will always be right as far as it goes; there will be no affectation or shallowness in it. The work of the drawing-master would be at first little more than the exhibition of the best means and enforcement of the most perfect results in the collateral studies of form.

Secondly. His critical power should be developed by the presence around him of the best models, *into the excellence of which his knowledge permits him to enter.* He should be encouraged, above all things, to form and express judgment of his own; not as if his judgment were of any importance as related to the excellence of the thing, but that both his master and he may know precisely in what state his mind is. He should be told of an Albert Dürer engraving, "That *is* good, whether you like it or not; but be sure to determine *whether* you do or do not, and why." All formal expressions of reasons for opinion, such as a boy could catch up and repeat, should be withheld like poison; and all models which are too good for him should be kept out of his way. Contemplation of works of art without understanding them jades the faculties and enslaves the intelligence. A Rembrandt etching is a better example to a boy than a finished Titian, and a cast from a leaf than one of the Elgin marbles.

Thirdly. I would no more involve the art-schools in the study of the history of art than surgical schools in that of the history of surgery. But a general idea of the influence of art on the human mind ought to be given by the study of history

in the historical schools ; the effect of a picture, and power of a painter, being examined just as carefully (in relation to its extent) as the effect of a battle and the power of a general. History, in its full sense, involves subordinate knowledge of all that influences the acts of mankind ; it has hardly yet been written at all, owing to the want of such subordinate knowledge in the historians ; it has been confined either to the relation of events by eye-witnesses (the only valuable form of it), or the more or less ingenious collation of such relations. And it is especially desirable to give history a more archæological range at this period, so that the class of manufactures produced by a city at a given date should be made of more importance in the student's mind than the humors of the factions that governed, or details of the accidents that preserved it, because every day renders the destruction of historical memorials more complete in Europe owing to the total want of interest in them felt by its upper and middle classes.

Fourthly. Where the faculty for art was special, it ought to be carried forward to the study of design, first in practical application to manufacture, then in higher branches of composition. The general principles of the application of art to manufacture should be explained in all cases, whether of special or limited faculty. Under this head we may at once get rid of the third question stated in the first page—how to detect special gift. The power of drawing from a given form accurately would not be enough to prove this : the additional power of design, with that of eye for color, which could be tested in the class concerned with manufacture, would justify the master in advising and encouraging the youth to undertake special pursuit of art as an object of life.

It seems easy, on the supposition of such a course of study, to conceive a mode of examination which would test relative excellence. I cannot suggest the kind of questions which ought to be put to the class occupied with sculpture ; but in my own business of painting, I should put, in general, such tasks and questions as these :

(1) "Sketch such and such an object" (given a difficult one, as a bird, complicated piece of drapery, or foliage)

"as completely as you can in light and shade in half an hour."

(2) "Finish such and such a portion of it" (given a very small portion) "as perfectly as you can, irrespective of time."

(3) "Sketch it in color in half an hour."

(4) "Design an ornament for a given place and purpose."

(5) "Sketch a picture of a given historical event in pen and ink."

(6) "Sketch it in colors."

(7) "Name the picture you were most interested in in the Royal Academy Exhibition of this year. State in writing what you suppose to be its principal merits—faults—the reasons of the *interest* you took in it."

I think it is only the fourth of these questions which would admit of much change; and the seventh in the name of the exhibition; the question being asked, without previous knowledge by the students, respecting some *one* of four or five given exhibitions which should be visited before the examination.

This being my general notion of what an Art-Examination should be, the second great question remains of the division of schools and connection of studies.

Now I have not yet considered—I have not, indeed, knowledge enough to enable me to consider—what the practical convenience or results of given arrangements would be. But the logical and harmonious arrangement is surely a simple one; and it seems to me as if it would not be inconvenient, namely (requiring elementary drawing with arithmetic in the preliminary Examination), that there should then be three advanced schools:

A. The School of Literature (occupied chiefly in the study of human emotion and history).

B. The School of Science (occupied chiefly in the study of external facts and existences of constant kind).

C. The School of Art (occupied in the development of active and productive human faculties).

In the school A, I would include Composition in all languages, Poetry, History, Archæology, Ethics.

In the school B, Mathematics, Political Economy, the Physical Sciences (including Geography and Medicine).

In the school C, Painting, Sculpture, including Architecture, Agriculture, Manufacture, War, Music, Bodily Exercises (Navigation in seaport schools,) including laws of health.

I should require, for a first class, proficiency in two schools; not, of course, in all the subjects of each chosen school, but in a well chosen and combined group of them. Thus, I should call a very good first-class man one who had got some such range of subjects, and such proficiency in each, as this:

English, Greek, and Mediæval-Italian Literature ..... High.
English and French History, and Archæology ..... Average.
Conic Sections ..... Thorough, as far as learnt.
Political Economy ..... Thorough, as far as learnt.
Botany, *or* Chemistry, *or* Physiology ..... High.
Painting ..... Average.
Music ..... Average.
Bodily Exercises ..... High.

I have written you a sadly long letter, but I could not manage to get it shorter.

Believe me, my dear Sir,

Very faithfully and respectfully yours,

J. RUSKIN.

REV. F. TEMPLE.

Perhaps I had better add what to you, but not to every one who considers such a scheme of education, would be palpable —that the main value of it would be brought out by judicious involution of its studies. This, for instance, would be the kind of Examination Paper I should hope for in the Botanical Class:

1. State the habit of such and such a plant.

2. Sketch its leaf, and a portion of its ramifications (memory).

3. Explain the mathematical laws of its growth and structure.

4. Give the composition of its juices in different seasons.

5. Its uses? Its relations to other families of plants, and conceivable uses beyond those known?

6. Its commercial value in London? Mode of cultivation?

7. Its mythological meaning? The commonest or most beautiful fables respecting it?

8. Quote any important references to it by great poets.

9. Time of its introduction.

10. Describe its consequent influence on civilization.

Of all these ten questions, there is not one which does not test the student in other studies than botany. Thus, 1, Geography; 2, Drawing; 3, Mathematics; 4, 5, Chemistry; 6, Political Economy; 7, 8, 9, 10, Literature.

Of course the plants required to be thus studied could be but few, and would rationally be chosen from the most useful of foreign plants, and those common and indigenous in England. All sciences should, I think, be taught more for the sake of their facts, and less for that of their system, than heretofore. Comprehensive and connected views are impossible to most men; the systems they learn are nothing but skeletons to them; but nearly all men can understand the relations of a few facts bearing on daily business, and to be exemplified in common substances. And science will soon be so vast that the most comprehensive men will still be narrow, and we shall see the fitness of rather teaching our youth to concentrate their general intelligence highly on given points than scatter it towards an infinite horizon from which they can fetch nothing, and to which they can carry nothing.

[From "Nature and Art," December 1, 1866.]

ART-TEACHING BY CORRESPONDENCE.

Dear Mr. Williams:[1] I like your plan of teaching by letter exceedingly: and not only so, but have myself adopted it largely, with the help of an intelligent under-master, whose operations, however, so far from interfering with, you will

[1] This letter was, it appears, originally addressed to an artist, Mr. Williams (of Southampton), and was then printed, some years later, in the number of Nature and Art above referred to.

much facilitate, if you can bring this literary way of teaching into more accepted practice. I wish we had more drawing-masters who were able to give instruction definite enough to be expressed in writing: many can teach nothing but a few tricks of the brush, and have nothing to write, because nothing to tell.

With every wish for your success,—a wish which I make quite as much in your pupils' interest as in your own,—

Believe me, always faithfully yours,

J. RUSKIN.

DENMARK HILL, *November*, 1860.

II.—PUBLIC INSTITUTIONS AND THE NATIONAL GALLERY.

[From "The Times," January 7, 1847.]

DANGER TO THE NATIONAL GALLERY.[1]

To the Editor of "The Times."

SIR: As I am sincerely desirous that a stop may be put to the dangerous process of cleaning lately begun in our National Gallery, and as I believe that what is right is most effectively when most kindly advocated, and what is true most convinc-

[1] Some words are necessary to explain this and the following letter. In the autumn of 1846 a correspondence was opened in the columns of The Times on the subject of the cleaning and restoration of the national pictures during the previous vacation. Mr. (afterwards Sir Charles) Eastlake was at this time Keeper of the Gallery, though he resigned office soon after this letter was written, partly in consequence of the attacks which had been made upon him. He was blamed, not only for restoring good pictures, but also for buying bad ones, and in particular the purchase of a "libel on Holbein" was quoted against him. The attack was led by the picture-dealer, and at one time artist, Mr. Morris Moore, writing at first under the pseudonym of "Verax," and afterwards in his own name. He continued his opposition through several years, especially during 1850 and 1852. He also published some pamphlets on the subject, amongst them one entitled "The Revival of Vandalism at the National Gallery, a reply to John Ruskin and others" (London, Ollivier, 1853). The whole discussion may be gathered in all its details from the Parliamentary Report of the Select Committee on the National Gallery in 1853.

ingly when least passionately asserted, I was grieved to see the violent attack upon Mr. Eastlake in your columns of Friday last; yet not less surprised at the attempted defence which appeared in them yesterday.[1] The outcry which has arisen upon this subject has been just, but it has been too loud; the injury done is neither so great nor so wilful as has been asserted, and I fear that the respect which might have been paid to remonstrance may be refused to clamor.

I was inclined at first to join as loudly as any in the hue and cry. Accustomed, as I have been, to look to England as the refuge of the pictorial as of all other distress, and to hope that, having no high art of her own, she would at least protect what she could not produce, and respect what she could not restore, I could not but look upon the attack which has been made upon the pictures in question as on the violation of a sanctuary. I had seen in Venice the noblest works of Veronese painted over with flake-white with a brush fit for tarring ships; I had seen in Florence Angelico's highest inspiration rotted and seared into fragments of old wood, burnt into blisters, or blotted into glutinous maps of mildew;[2] I had seen in Paris Raphael restored by David and Vernet; and I returned to England in the one last trust that, though her National Gallery was an European jest, her art a shadow, and her connoisseurship an hypocrisy, though she neither knew how to cherish nor how to choose, and lay exposed to the cheats of every vender of old canvas—yet that such good pictures as through chance or oversight might find their way beneath that preposterous portico, and into those melancholy and miserable rooms, were at least to be vindicated thenceforward from the mercy of publican, priest, or painter, safe alike from musketry, monkery, and manipulation.

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[1] The "violent attack" alludes to a letter of "Verax" in The Times of Thursday (not Friday), December 31, 1846, and the "attempted defence" to another letter signed "A. G." in The Times of January 4, two days (not *the* day) before Mr. Ruskin wrote the present letter.

[2] The Crucifixion, or Adoration of the Cross, in the church of San Marco. An engraving of this picture may be found in Mrs. Jameson's History of our Lord, vol. i. p. 189.

But whatever pain I may feel at the dissipation of this dream, I am not disposed altogether to deny the necessity of some illuminatory process with respect to pictures exposed to a London atmosphere and populace. Dust an inch thick, accumulated upon the panes in the course of the day, and darkness closing over the canvas like a curtain, attest too forcibly the influence on floor and air of the "mutable, rank-scented, many." It is of little use to be over-anxious for the preservation of pictures which we cannot see; the only question is, whether in the present instance the process may not have been carried perilously far, and whether in future simpler and safer means may not be adopted to remove the coat of dust and smoke, without affecting either the glazing of the picture, or what is almost as precious, the mellow tone left by time.

As regards the "Peace and War,"[1] I have no hesitation in asserting that for the present it is utterly and forever partially destroyed. I am not disposed lightly to impugn the judgment of Mr. Eastlake, but this was indisputably of all the pictures in the Gallery that which least required, and least could endure the process of cleaning. It was in the most advantageous condition under which a work of Rubens can be seen; mellowed by time into more perfect harmony than when it left the easel, enriched and warmed, without losing any of its freshness or energy. The execution of the master is always so bold and frank as to be completely, perhaps even most agreeably, seen under circumstances of obscurity, which would be injurious to pictures of greater refinement; and, though this was, indeed, one of his most highly finished and careful works (to my mind, before it suffered this recent injury, far superior to everything at Antwerp, Malines, or Cologne), this was a more weighty reason for caution than for interference. Some portions of color have been exhibited which were formerly untraceable; but even these have lost in power what they have gained in definiteness—the majesty and preciousness of all the tones are departed, the balance of distances lost. Time may perhaps restore something of the glow, but never

[1] No. 46 in the National Gallery.

the subordination; and the more delicate portions of flesh tint, especially the back of the female figure on the left, and of the boy in the centre, are destroyed forever.

The large Cuyp [1] is, I think, nearly uninjured. Many portions of the foreground painting have been revealed, which were before only to be traced painfully, if at all. The distance has indeed lost the appearance of sunny haze, which was its chief charm, but this I have little doubt it originally did not possess, and in process of time may recover.

The "Bacchus and Ariadne" [2] of Titian has escaped so scot free that, not knowing it had been cleaned, I passed it without noticing any change. I observed only that the blue of the distance was more intense than I had previously thought it, though, four years ago, I said of that distance that it was "difficult to imagine anything more magnificently impossible, not from its vividness, but because it is *not faint and aërial enough* to account for its purity of color. There is so total a want of atmosphere in it, that but for the difference of form it would be impossible to distinguish the mountains from the robe of Ariadne." *

Your correspondent is alike unacquainted with the previous condition of this picture, and with the character of Titian distances in general, when he complains of a loss of aërial quality resulting in the present case from cleaning.

I unfortunately did not see the new Velasquez [3] until it had undergone its discipline; but I have seldom met with an example of the master which gave me more delight, or which I believe to be in more genuine or perfect condition. I saw no

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[1] Landscape, with Cattle and Figures—Evening (No. 53). Since the bequest of the somewhat higher "large Dort" in 1876 (No. 961), it has ceased to be "the large Cuyp."

[2] No. 35 in the National Gallery. This and the two pictures already mentioned were the typical instances of "spoilt pictures," quoted by "Verax."

[3] Philip IV. of Spain, hunting the Wild Boar (No. 197), purchased in 1846.

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* Modern Painters, vol. i.

traces of the retouching which is hinted at by your correspondent "Verax," nor are the touches on that canvas such as to admit of very easy or untraceable interpolation of meaner handling. His complaint of loss of substance in the figures of the foreground is, I have no doubt, altogether groundless. He has seen little southern scenery if he supposes that the brilliancy and apparent nearness of the silver clouds is in the slightest degree overcharged; and shows little appreciation of Velasquez in supposing him to have sacrificed the solemnity and might of such a distance to the inferior interest of the figures in the foreground. Had he studied the picture attentively, he might have observed that the position of the horizon suggests, and the *lateral* extent of the foreground *proves*, such a distance between the spectator and even its nearest figures as may well justify the slightness of their execution.

Even granting that some of the upper glazings of the figures had been removed, the tone of the whole picture is so light, gray, and glittering, and the dependence on the power of its whites so absolute, that I think the process hardly to be regretted which has left these in lustre so precious, and restored to a brilliancy which a comparison with any modern work of of similar aim would render apparently supernatural, the sparkling motion of its figures and the serene snow of its sky.

I believe I have stated to its fullest extent all the harm that has yet been done, yet I earnestly protest against any continuance of the treatment to which these pictures have been subjected. It is useless to allege that nothing but discolored varnish has been withdrawn, for it is perfectly possible to alter the structure and continuity, and so destroy the aërial relations of colors of which no part has been removed. I have seen the dark blue of a water-color drawing made opaque and pale merely by mounting it; and even supposing no other injury were done, every time a picture is cleaned it loses, like a restored building, part of its authority; and is thenceforward liable to dispute and suspicion, every one of its beauties open to question, while its faults are screened from accusation. It cannot be any more reasoned from with security; for, though allowance may be made for the effect of time, no one can cal-

culate the arbitrary and accidental changes occasioned by violent cleaning. None of the varnishes should be attacked; whatever the medium used, nothing but soot and dust should be taken away, and that chiefly by delicate and patient friction; and, in order to protract as long as possible the necessity even for this all the important pictures in the gallery should at once be put under glass,[1] and closed, not merely by hinged doors, like the Correggio, but permanently and securely. I should be glad to see this done in all rich galleries, but it is peculiarly necessary in the case of pictures exposed in London, and to a crowd freely admitted four days in the week: it would do good also by necessitating the enlargement of the rooms, and the bringing down of all the pictures to the level of the eye. Every picture that is worth buying or retaining is worth exhibiting in its proper place, and if its scale be large, and its handling rough, there is the more instruction to be gained by close study of the various means adopted by the master to secure his distant effect. We can certainly spare both the ground and the funds which would enable us to exhibit pictures for which no price is thought too large, and for all purposes of study and for most of enjoyment pictures are useless when they are even a little above the line. The fatigue complained of by most persons in examining a picture gallery is attributable, not only to the number of works, but to their confused order of succession, and to the straining of the sight in endeavoring to penetrate the details of those above the eye. Every gallery should be long enough to admit of its whole collection being hung in one line, side by side, and wide enough to allow of the specta-

[1] On this and other collateral subjects the reader is referred to the next letter; to Mr. Ruskin's evidence before the National Gallery Commission in 1857; and to the Appendix to his Notes on the Turner Gallery at Marlborough House, 1856–7. It is hardly necessary to state that a very large number of the national pictures, especially the Turners, are now preserved under glass. Of the other strictures here pronounced, some are no longer deserved; and it may well be remembered that at the time this letter was written the National Gallery had been founded less than five-and-twenty years.

tors retiring to the distance at which the largest picture was intended to be seen. The works of every master should be brought together and arranged in chronological order ; and such drawings or engravings as may exist in the collection, either of, or for, its pictures, or in any way illustrative of them, should be placed in frames opposite each, in the middle of the room.

But, Sir, the subjects of regret connected with the present management of our national collection are not to be limited either to its treatment or its arrangement. The principles of selection which have been acted upon in the course of the last five or six years have been as extraordinary as unjustifiable. Whatever may be the intrinsic power, interest, or artistical ability of the earlier essays of any school of art, it cannot be disputed that characteristic examples of every one of its most important phases should form part of a national collection : granting them of little value individually, their collective teaching is of irrefragable authority ; and the exhibition of perfected results alone, while the course of national progress through which these were reached is altogether concealed, is more likely to discourage than to assist the efforts of an undeveloped school. Granting even what the shallowest materialism of modern artists would assume, that the works of Perugino were of no value, but as they taught Raphael ; that John Bellini is altogether absorbed and overmastered by Titian ; that Nino Pisano was utterly superseded by Bandinelli or Cellini, and Ghirlandajo sunk in the shadow of Buonaroti : granting Van Eyck to be a mere mechanist, and Giotto a mere child, and Angelico a superstitious monk, and whatever you choose to grant that ever blindness deemed or insolence affirmed, still it is to be maintained and proved, that if we wish to have a Buonaroti or a Titian of our own, we shall with more wisdom learn of those of whom Buonaroti and Titian learned, and at whose knees they were brought up, and whom to the day of their death they ever revered and worshipped, than of those wretched pupils and partisans who sank every high function of art into a form and a faction, betrayed her trusts, darkened her traditions, overthrew her throne, and left us where we now are,

stumbling among its fragments. Sir, if the canvases of Guido, lately introduced into the gallery,[1] had been works of the best of those pupils, which they are not; if they had been good works of even that bad master, which they are not; if they had been genuine and untouched works, even though feeble, which they are not; if, though false and retouched remnants of a feeble and fallen school, they had been endurably decent or elementarily instructive—some conceivable excuse might perhaps have been by ingenuity forged, and by impudence uttered, for their introduction into a gallery where we previously possessed two good Guidos,[2] and no Perugino (for the attribution to him of the wretched panel which now bears his name is a mere insult), no Angelico, no Fra Bartolomeo, no Albertinelli, no Ghirlandajo, no Verrochio, no Lorenzo di Credi—(what shall I more say, for the time would fail me?) But now, Sir, what vestige of apology remains for the cumbering our walls with pictures that have no single virtue, no color, no drawing, no character, no history, no thought? Yet 2,000 guineas were, I believe, given for one of those encumbrances, and 5,000 for the coarse and unnecessary Rubens,[3] added to a room half filled with Rubens before, while a mighty and perfect work of Angelico was sold from Cardinal Fesch's

[1] Lot and his Daughters Leaving Sodom (No. 193), bequeathed to the gallery in 1844; and Susannah and the Elders (No. 196), purchased in the same year.

[2] The "two good Guidos" previously possessed are the St. Jerome (No. 11) and the Magdalen (No. 177). The "wretched panel" is No. 181, The Virgin and Infant Christ with St. John. For the rest, the gallery now includes two other Peruginos, The Virgin adoring the Infant Christ, the Archangel Michael, the Archangel Raphael and Tobias (No. 288), three panels, purchased in 1856, and the very recent (1879) purchase of the Virgin and Child with St. Jerome and St. Francis (No. 1075). It boasts also of two Angelicos—The Adoration of the Magi (No. 582) and Christ amid the Blessed (No. 663), purchased in 1857 and 1860; one Albertinelli, Virgin and Child (No. 645), also purchased in 1860; and two Lorenzo di Credis, both of the Virgin and Child (Nos. 593 and 648), purchased in 1857 and 1865. But it still possesses no Fra Bartolomeo, no Ghirlandajo, and no Verrochio.

[3] The Judgment of Paris (No. 194), purchased from Mr. Penrice's collection in 1846.

collection for 1,500.[1] I do not speak of the spurious Holbein,[2] for though the veriest tyro might well be ashamed of such a purchase, it would have been a judicious addition had it been genuine; so was the John Bellini, so was the Van Eyck; but the mighty Venetian master, who alone of all the painters of Italy united purity of religious aim with perfection of artistical power, is poorly represented by a single head;[3] and I ask, in the name of the earnest students of England, that the funds set apart for her gallery may no longer be played with like pebbles in London auction-rooms. Let agents be sent to all the cities of Italy; let the noble pictures which are perishing there be rescued from the invisibility and ill-treatment which their position too commonly implies, and let us have a national collection which, however imperfect, shall be orderly and continuous, and shall exhibit with something like relative candor and justice the claims to our reverence of those great and ancient builders, whose mighty foundation has been for two centuries concealed by wood, and hay, and stubble, the distorted growing, and thin gleaning of vain men in blasted fields.

I have the honor to be, Sir,

Your obedient servant,

THE AUTHOR OF "MODERN PAINTERS."

January 6.

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[1] The Last Judgment; its purchaser was the Earl of Dudley, in whose possession the picture, now hanging at Dudley House in London, has ever since remained. An engraving of this work (pronounced the finest of Angelico's four representations of this subject), may be found in Mrs. Jameson's History of our Lord, vol. ii. p. 414. Cardinal Fesch was Archbishop of Lyons, and the uncle of Napoleon Buonaparte. His gallery contained in its time the finest private collection of pictures in Rome.

[2] The "libel on Holbein" was bought as an original, from Mr. Rochard, in 1845. It now figures in the National Gallery as A Medical Professor—artist unknown (No. 195).

[3] The Bellini is the portrait of Doge Leonardo Loredano (No. 189), purchased in 1844: four more examples (Nos. 280, 726, 808, 812) of the same "mighty Venetian master" have since been introduced, so that he is no longer "poorly represented by a single head." The Van Eyck is the Portrait of Jean Arnolfini and his Wife (No. 186), purchased in 1842.

[From "The Times," December 29, 1852.]

THE NATIONAL GALLERY.

To the Editor of "The Times."

SIR: I trust that the excitement which has been caused by the alleged destruction of some of the most important pictures in the National Gallery will not be without results, whatever may be the facts in the case with respect to the works in question. Under the name of "restoration," the ruin of the noblest architecture and painting is constant throughout Europe. We shall show ourselves wiser than our neighbors if the loss of two Claudes and the injury of a Paul Veronese [1] induce us to pay so much attention to the preservation of ancient art as may prevent it from becoming a disputed question in future whether they are indeed pictures which we possess or their skeletons.

As to the facts in the present instance, I can give no opinion. Sir Charles Eastlake and Mr. Uwins [2] know more than I of oil paintings in general, and have far more profound respect for those of Claude in particular. I do not suppose they would have taken from him his golden armor that Turner might bear away a dishonorable victory in the noble passage of arms to which he has challenged his rival from the grave.*

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[1] Claude's Marriage of Isaac and Rebecca (No 12), and his Queen of Sheba picture (No. 14, Seaport, with figures). The only pictures of Veronese which the Gallery at this time contained, were the Consecration of St. Nicholas (No. 26), and the Rape of Europa (No. 97). It is the former of these two that is here spoken of as injured (see the Report of the National Gallery Committee in 1853).

[2] Mr. Thomas Uwins, R.A., had succeeded Sir Charles Eastlake as Keeper of the National Gallery in 1847; and resigned, for a similar reason, in 1855.

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* The public may not, perhaps, be generally aware that the condition by which the nation retains the two pictures bequeathed to it by Turner, and now in the National Gallery, is that "they shall be hung beside Claude's." [3]

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[3] Dido building Carthage (No. 498), and The Sun rising in a Mist (No. 479). The actual wording of Turner's will on the matter ran thus: "I

Nor can the public suppose that the Curators of the National Gallery have any interest in destroying the works with which they are intrusted. If, acting to the best of their judgment, they have done harm, to whom are we to look for greater prudence or better success? Are the public prepared to withdraw their confidence from Sir C. Eastlake and the members of the Royal Academy, and entrust the national property to Mr. Morris Moore, or to any of the artists and amateurs who have inflamed the sheets of *The Times* with their indignation? Is it not evident that the only security which the nation can possess for its pictures must be found in taking such measures as may in future prevent the necessity of their being touched at all? For this is very certain, that all question respecting the effects of cleaning is merely one of the amount of injury. Every picture which has undergone more friction than is necessary at intervals for the removal of dust or dirt, has suffered injury to some extent. The last touches of the master leave the surface of the color with a certain substantial texture, the bloom of which, if once reached under the varnish, must inevitably be more or less removed by friction of any kind—how much more by friction aided by solvents? I am well assured that every possessor of pictures who truly loves them, would keep—if it might be—their surfaces from being so much as breathed upon, which may, indeed, be done, and done easily.

Every stranger who enters our National Gallery, if he be a thoughtful person, must assuredly put to himself a curious question. Perceiving that certain pictures—namely, three Correggios, two Raphaels and a John Bellini—are put under glass,[1] and that all the others are left exposed, as oil pictures are in general, he must ask himself, "Is it an ascertained fact that glass preserves pictures; and are none of the pictures here

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direct that the said pictures, or paintings, shall be hung, kept, and placed, that is to say, always between the two pictures painted by Claude, the Seaport and the Mill." Accordingly they now hang side by side with these two pictures (Nos. 5 and 12) in the National Gallery.

[1] See p. 52, note.

thought worth a pane of glass but these five? Or is it unascertained whether glass is beneficial or injurious, and have the Raphaels and Correggios been selected for the trial—'*Fiat experimentum in corpore vili?*'" Some years ago it might have been difficult to answer him; now the answer is easy, though it be strange. The experiment has been made. The Raphaels and Correggios have been under glass for many years: they are as fresh and lovely as when they were first enclosed; they need no cleaning, and will need none for half a century to come; and it must be, therefore, that the rest of the pictures are left exposed to the London atmosphere, and to the operations which its influence renders necessary, simply because they are not thought worth a pane of plate glass. No: there is yet one other possible answer—that many of them are hung so high, or in such lights, that they could not be seen if they were glazed. Is it then absolutely necessary that they should be hung so high? We are about to build a new National Gallery; may it not be so arranged as that the pictures we place therein may at once be safe and visible?

I know that this has never yet been done in any gallery in Europe, for the European public have never yet reflected that a picture which was worth buying was also worth seeing. Some time or other they will assuredly awake to the perception of this wonderful truth, and it would be some credit to our English common-sense if we were the first to act upon it.

I say that a picture which is worth buying is also worth seeing; that is, worth so much room of ground and wall as shall enable us to see it to the best advantage. It is not commonly so understood. Nations, like individuals, buy their pictures in mere ostentation; and are content, so that their possessions are acknowledged that they should be hung in any dark or out-of-the-way corners which their frames will fit. Or, at best, the popular idea of a national gallery is that of a magnificent palace, whose walls must be decorated with colored panels, every one of which shall cost £1,000, and be discernible, through a telescope, for the work of a mighty hand

[1] Query, a misprint? as all pictures are mentioned.

I have no doubt that in a few years more there will be a change of feeling in this matter, and that men will begin to perceive, what is indeed the truth—that every noble picture is a manuscript book, of which only one copy exists, or ever can exist; that a national gallery is a great library,[1] of which the books must be read upon their shelves; that every manuscript ought, therefore, to be placed where it can be read most easily; and that the style of the architecture and the effect of the saloons are matters of no importance whatsoever, but that our solicitude ought to begin and end in the two imperative requirements—that every picture in the gallery should be perfectly seen and perfectly safe; that none should be thrust up, or down, or aside, to make room for more important ones; that all should be in a good light, all on a level with the eye, and all secure from damp, cold, impurity of atmosphere, and every other avoidable cause of deterioration.

These are the things to be accomplished; and if we set ourselves to do these in our new National Gallery,[2] we shall have made a greater step in art-teaching than if we had built a new Parthenon. I know that it will be a strange idea to most of us that Titians and Tintorets ought, indeed, all to have places upon "the line," as well as the annual productions of our Royal Academicians; and I know that the *coup d'œil* of the Gallery must be entirely destroyed by such an arrangement. But great pictures ought not to be subjects of "*coups d'œil.*" In the last arrangement of the Louvre, under the Republic, all the noble pictures in the gallery were brought into

[1] "The Art of a nation is, I think, one of the most important points of its history, and a part which, if once destroyed, no history will ever supply the place of; and the first idea of a National Gallery is that it should be a Library of Art, in which the rudest efforts are, in some cases, hardly less important than the noblest."—National Gallery Commission, 1857: Mr. Ruskin's evidence.

[2] It was at this time proposed to remove the national pictures from Trafalgar Square to some new building to be erected for them elsewhere. This proposal was, however, negatived by the commission ultimately appointed (1857) to consider the matter, and to some extent rendered unnecessary by the enlargement of the gallery, decided upon in 1866.

one room, with a Napoleon-like resolution to produce effect by concentration of force; and, indeed, I would not part willingly with the memory of that saloon, whose obscurest shadows were full of Correggio; in whose out-of-the-way angles one forgot, here and there, a Raphael; and in which the best Tintoret on this side of the Alps was hung sixty feet from the ground![1] But Cleopatra dissolving the pearl was nothing to this; and I trust that, in our own Gallery, our poverty, if not our will, may consent to a more modest and less lavish manner of displaying such treasures as are intrusted to us; and that the very limitation of our possessions may induce us to make that the object of our care, which can hardly be a ground of ostentation. It might, indeed, be a matter of some difficulty to conceive an arrangement of the collections in the Louvre or the Florence Gallery which should admit of every picture being hung upon the line. But the works in our own, including the Vernon and Turner bequests,[2] present no obstacle in their number to our making the building which shall receive them a perfect model of what a National Gallery ought to be. And the conditions of this perfection are so simple that if we only turn our attention to these main points it will need no great architectural ingenuity to attain all that is required.

It is evident, in the first place, that the building ought to consist of a series of chambers or galleries lighted from above, and built with such reference to the pictures they are to contain, as that opposite a large picture room enough should be allowed for the spectator to retire to the utmost distance at which it can ever be desirable that its effect should

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[1] The galleries of the Louvre were reorganized on their being declared national instead of crown property, after the Revolution of 1848; and the choicest pictures were then collected together in the "grand salon carré," which, although since rearranged, still contains a similar selection. The "best Tintoret on this side of the Alps" is the Susannah and the Elders, now No. 349 in that room.

[2] The *gift* of Mr. Robert Vernon, in 1847, consisted of 157 pictures, all of them, with two exceptions only, of the British school. The Turner bequest included 105 finished oil paintings, in addition to the numerous sketches and drawings.

be seen; but, as economy of space would become a most important object when every picture was to be hung on a level with the eye, smaller apartments might open from the larger ones for the reception of smaller pictures, one condition being, however, made imperative, whatever space was sacrificed to it —namely, that the works of every master should be collected together, either in the same apartment or in contiguous ones. Nothing has so much retarded the advance of art as our miserable habit of mixing the works of every master and of every century. More would be learned by an ordinarily intelligent observer in simply passing from a room in which there were only Titians, to another in which there were only Caraccis, than by reading a volume of lectures on color. Few minds are strong enough first to abstract and then to generalize the characters of paintings hung at random. Few minds are so dull as not at once to perceive the points of difference, were the works of each painter set by themselves. The fatigue of which most persons complain in passing through a picture gallery, as at present arranged, is indeed partly caused by the straining effort to see what is out of sight, but not less by the continual change of temper and of tone of thought demanded in passing from the work of one master to that of another.

The works of each being, therefore, set by themselves,* and the whole collection arranged in chronological and ethnological order, let apartments be designed for each group large enough to admit of the increase of the existing collection to any probable amount. The whole gallery would thus become of great length, but might be adapted to any form of ground-plan by disposing the whole in a labyrinthine chain, returning upon itself. Its chronological arrangement would necessitate its being continuous, rather than divided into many branches or sections. Being lighted from above, it must be all on the same floor, but ought at least to be raised one story

* An example of a cognate school might, however, be occasionally introduced for the sake of direct comparison, as in one instance would be necessitated by the condition above mentioned attached to part of the Turner bequest.

above the ground, and might admit any number of keepers' apartments, or of schools, beneath ; though it would be better to make it quite independent of these, in order to diminish the risk of fire. Its walls ought on every side to be surrounded by corridors, so that the interior temperature might be kept equal, and no outer surface of wall on which pictures were hung exposed to the weather. Every picture should be glazed, and the horizon which the painter had given to it placed on a level with the eye.

Lastly, opposite each picture should be a table, containing, under glass, every engraving that had ever been made from it, and any studies for it, by the master's own hand, that remained, or were obtainable. The values of the study and of the picture are reciprocally increased—of the former more than doubled—by their being seen together ; and if this system were once adopted, the keepers of the various galleries of Europe would doubtless consent to such exchanges of the sketches in their possession as would render all their collections more interesting.

I trust, Sir, that the importance of this subject will excuse the extent of my trespass upon your columns, and that the simplicity and self-evident desirableness of the arrangement I have described may vindicate my proposal of it from the charge of presumption.

I have the honor to be, Sir,

Your obedient servant,

THE AUTHOR OF "MODERN PAINTERS."

HERNE HILL, DULWICH, *Dec.* 27.

[From "The Times," January 27, 1866.]

THE BRITISH MUSEUM.

To the Editor of "The Times."

SIR : As I see in your impression of yesterday that my name was introduced in support of some remarks made, at the meeting of the Society of Arts, on the management of the

British Museum,[1] and as the tendency of the remarks I refer to was depreciatory of the efforts and aims of several officers of the Museum—more especially of the work done on the collection of minerals by my friend Mr. Nevil S. Maskelyne[2]—you will, I hope, permit me, not having been present at the meeting, to express my feeling on the subject briefly in your columns.

There is a confused notion in the existing public mind that the British Museum is partly a parish school, partly a circulating library, and partly a place for Christmas entertainments. It is none of the three, and, I hope, will never be made any of the three. But especially and most distinctly it is not a "preparatory school," nor even an "academy for young gentlemen," nor even a "working-men's college." A national museum is one thing, a national place of education another; and the more sternly and unequivocally they are separated, the better will each perform its office—the one of treasuring and the other of teaching. I heartily wish that there were already, as one day there must be, large educational museums in every district of London, freely open every day, and well lighted and warmed at night, with all furniture of comfort, and full aids for the use of their contents by all classes. But you might just as rationally send the British public to the Tower to study mineralogy upon the Crown jewels as make the unique pieces of a worthy national collection (such as, owing mainly to the exertions of its maligned officers, that of our British Museum has recently become) the means of elementary public instruction. After men have learnt their science or their art, at least so far as to know a common and

[1] At the meeting of the Society, in the Hall, Adelphi, Lord Henry Lennox read a paper on "The Uses of National Museums to Local Institutions," in which he spoke of Mr. Ruskin's suggestions "adopted and recommended to Parliament in annual reports, and in obedience to distinct Commissions," as having been unwarrantably disregarded since 1858. See Mr. Ruskin's official report on the Turner Bequest, printed in the Report of the Director of the National Gallery to the Lords of the Treasury, 1858, Appendix vii.

[2] Professor Nevil Story-Maskelyne (now M.P. for Cricklade) was then, and till his recent resignation, Keeper of Mineralogy at the Museum.

a rare example in either, a national museum is useful, and ought to be easily accessible to them; but until then, unique or selected specimens in natural history are without interest to them, and the best art is as useless as a blank wall. For all those who can use the existing national collection to any purpose, the Catalogue as it now stands is amply sufficient: it would be difficult to conceive a more serviceable one. But the rapidly progressive state of (especially mineralogical) science, renders it impossible for the Curators to make their arrangements in all points satisfactory or for long periods permanent. It is just because Mr. Maskelyne is doing more active, continual, and careful work than, as far as I know, is at present done in any national museum in Europe—because he is completing gaps in the present series by the intercalation of carefully sought specimens, and accurately reforming its classification by recently corrected analyses—that the collection cannot yet fall into the formal and placid order in which an indolent Curator would speedily arrange and willingly leave it.

I am glad that Lord H. Lennox referred to the passage in my report on the Turner Collection in which I recommended that certain portions of that great series should be distributed, for permanence, among our leading provincial towns.[1] But I had rather see the whole Turner Collection buried, not merely in the cellars of the National Gallery, but with Prospero's staff fathoms in the earth, than that it should be the

[1] In Mr. Ruskin's official report already mentioned, and which was made at the close of his labors in arranging the Turner drawings, and dated March 27, 1858, he divided the collection into three classes, of which the third consisted of drawings available for distribution among provincial Schools of Art. The passage of the report referred to is as follows: "The remainder of the collection consists of drawings of miscellaneous character, from which many might be spared with little loss to the collection in London, and great advantage to students in the provinces. Five or six collections, each completely illustrative of Turner's modes of study, and successions of practice, might easily be prepared for the academies of Edinburgh, Dublin, and the principal English manufacturing towns."—See also the similar recommendation with regard to the Outlines of John Leech, in the letter on that subject.

means of inaugurating the fatal custom of carrying great works of art about the roads for a show. If you *must* make them educational to the public, hang Titian's Bacchus up for a vintner's sign, and give Henry VI.'s Psalter [1] for a spelling-book to the Bluecoat School; but, at least, hang the one from a permanent post, and chain the other to the boys' desks, and do not send them about in caravans to every annual Bartholomew Fair.

I am, Sir, your obedient servant,

J. RUSKIN.

DENMARK HILL, *Jan.* 26.

[From "The Leicester Chronicle and Mercury," January 31, and reprinted in "The Times," February 2, 1880.]

ON THE PURCHASE OF PICTURES.[2]

DEAR SIR: Your letter is deeply interesting to me, but what use is there in my telling you what to do? The mob won't let you do it. It is fatally true that no one nowadays can appreciate pictures by the Old Masters! and that every one can understand Frith's "Derby Day"—that is to say, everybody is interested in jockeys, harlots, mountebanks, and men about town; but nobody in saints, heroes, kings, or wise men—either from the east or west. What can you do? If your Committee is strong enough to carry such a resolution as the appointment of any *singly* responsible person, any well-informed gentleman of taste in your neighborhood, to buy for the Leicester public just what he would buy for himself—that is to say, himself *and his family*—children being the really most important of the untaught public—and to answer simply to all accusation—that is, a good and worthy piece of art

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[1] Titian's Bacchus and Ariadne—already mentioned, p. 40. Henry VI.'s Psalter is in the British Museum ("Domitian A. 17," in the Cottonian Catalogue). It is of early fifteenth century work, and was executed in England by a French artist for the then youthful king, from whom it takes its name.

[2] This letter was written in reply to one requesting Mr. Ruskin's views on the best means of forming a public Gallery at Leicester.

(past or present, no matter which)—make the most and best you can of it. That method so long as tenable will be useful. I know of no other.

Faithfully yours, J. RUSKIN.

III.—PRE-RAPHAELITISM.

[From "The Times," May 13, 1851.]

THE PRE-RAPHAELITE BRETHREN.

To the Editor of "The Times."

SIR: Your usual liberality will, I trust, give a place in your columns to this expression of my regret that the tone of the critique which appeared in *The Times* of Wednesday last on the works of Mr. Millais and Mr. Hunt, now in the Royal Academy, should have been scornful as well as severe.[1]

I regret it, first, because the mere labor bestowed on those works, and their fidelity to a certain order of truth (labor and fidelity which are altogether indisputable), ought at once to have placed them above the level of mere contempt; and, secondly, because I believe these young artists to be at a most critical period of their career—at a turning-point, from which they may either sink into nothingness or rise to very real greatness; and I believe also, that whether they choose the upward or the downward path, may in no small degree depend upon the character of the criticism which their works have to sustain. I do not wish in any way to dispute or in-

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[1] That the critique was sufficiently bitter, may be gathered from the following portions of it: "These young artists have unfortunately become notorious by addicting themselves to an antiquated style and an affected simplicity in painting. . . . We can extend no toleration to a mere senile imitation of the cramped style, false perspective, and crude color of remote antiquity. We want not to see what Fuseli termed drapery 'snapped instead of folded;' faces bloated into apoplexy, or extenuated to skeletons; color borrowed from the jars in a druggist's shop, and expression forced into caricature. . . . That morbid infatuation which sacrifices truth, beauty, and genuine feeling to mere eccentricity, deserves no quarter at the hands of the public."

validate the general truth of your critique on the Royal Academy; nor am I surprised at the estimate which the writer formed of the pictures in question when rapidly compared with works of totally different style and aim; nay, when I first saw the chief picture by Millais in the Exhibition of last year,[1] I had nearly come to the same conclusion myself. But I ask your permission, in justice to artists who have at least given much time and toil to their pictures, to institute some more serious inquiry into their merits and faults than your general notice of the Academy could possibly have admitted.

Let me state, in the first place, that I have no acquaintance with any of these artists, and very imperfect sympathy with them. No one who has met with any of my writings will suspect me of desiring to encourage them in their Romanist and Tractarian tendencies.[2] I am glad to see that Mr. Millais' lady in blue[3] is heartily tired of her painted window and idolatrous toilet-table; and I have no particular respect for

[1] A sacred picture (No. 518) upon the text, "And one shall say unto him, What are these wounds in thine hands? Then he shall answer, Those with which I was wounded in the house of my friends" (Zechariah xiii. 6). He had two other pictures in the Academy of 1850, namely, Portrait of a gentleman and his grandchild (No. 429), and Ferdinand lured by Ariel (No. 504)—Shakespeare, Tempest, Act ii. sc. 2.

[2] See the next letter, p. 70. With regard to the religious tone of some parts of Mr. Ruskin's early writings, it is worth noting that in the recent reissue (1880) of the Seven Lamps of Architecture, "some pieces of rabid and utterly false Protestantism . . . are cut from text and appendix alike."—(Preface, p. 1; and see the note on one such omission on p. 19). So again in the preface to the final edition of Modern Painters, issued in 1873, Mr. Ruskin stated that his objection to republishing unrevised the first two volumes of that work was that "they are written in a narrow enthusiasm, and the substance of their metaphysical and religious speculation is only justifiable on the ground of its absolute sincerity."—See also Sesame and Lilies, 1871 ed., Preface, p. 2.

[3] The pre-Raphaelite pictures exhibited in the Academy of this year, and referred to here and in the following letter, were the Mariana (No. 561) of Millais, The Return of the Dove to the Ark (No. 65), and The Woodman's Daughter (No. 799), (see Coventry Patmore's Poems, vol. i. p. 184—4 vol. ed., 1879), both also by Millais; the Valentine receiving (rescuing ?) Sylvia from Proteus (No. 594), of Holman Hunt:

Mr. Collins' lady in white, because her sympathies are limited by a dead wall, or divided between some gold fish and a tadpole—(the latter Mr. Collins may, perhaps, permit me to suggest *en passant*, as he is already half a frog, is rather too small for his age). But I happen to have a special acquaintance with the water plant *Alisma Plantago*, among which the said gold fish are swimming; and as I never saw it so thoroughly or so well drawn, I must take leave to remonstrate with you, when you say sweepingly that these men "sacrifice *truth* as well as feeling to eccentricity." For as a mere botanical study of the water-lily and *Alisma*, as well as of the common lily and several other garden flowers, this picture would be invaluable to me, and I heartily wish it were mine.

But, before entering into such particulars, let me correct an impression which your article is likely to induce in most minds, and which is altogether false. These pre-Raphaelites (I cannot compliment them on common-sense in choice of a *nom de guerre*) do *not* desire nor pretend in any way to imitate antique painting as such. They know very little of ancient paintings who suppose the works of these young artists to resemble them.[1] As far as I can judge of their aim—for, as I

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and the Convent Thoughts (No. 493) of Mr. C. Collins, to which were affixed the lines from Midsummer Night's Dream (Act i. sc. 1)

> "Thrice blessed they, that master so their blood
> To undergo such maiden pilgrimage;"

and the verse (Psalm cxliii. 5), "I meditate on all Thy works; I muse on the work of Thy hands." The last-named artist also had a portrait of Mr. William Bennett (No. 718) in the Exhibition—not, however, alluded to in this letter. Mr. Charles Allston Collins, who was the son of William Collins, R. A., and the younger brother of Mr. Wilkie Collins, subsequently turned his attention to literature, and may be remembered as the author of a Cruise upon Wheels, The Eye-Witness, and other writings.

[1] Compare Modern Painters, vol. i. p. 415, note, where allusion is made to the painters of a society which unfortunately, or rather unwisely, has given itself the name of 'Pre-Raphaelite;' unfortunately, because the principles on which its members are working are neither pre- nor post-Raphaelite, but everlasting. They are endeavoring to paint with the highest possible degree of completion, what they see in nature, without reference to conventional established rules; but by no means to imitate the style of any past epoch.

said, I do not know the men themselves—the pre-Raphaelites intend to surrender no advantage which the knowledge or inventions of the present time can afford to their art. They intend to return to early days in this one point only—that, as far as in them lies, they will draw either what they see, or what they suppose might have been the actual facts of the scene they desire to represent, irrespective of any conventional rules of picture-making; and they have chosen their unfortunate though not inaccurate name because all artists did this before Raphael's time, and after Raphael's time did *not* this, but sought to paint fair pictures, rather than represent stern facts; of which the consequence has been that, from Raphael's time to this day, historical art has been in acknowledged decadence.

Now, sir, presupposing that the intention of these men was to return to archaic *art* instead of to archaic *honesty*, your critic borrows Fuseli's expression respecting ancient draperies "snapped instead of folded," and asserts that in these pictures there is a "*servile* imitation of *false* perspective." To which I have just this to answer:

That there is not one single error in perspective in four out of the five pictures in question; and that in Millais' "Mariana" there is but this one—that the top of the green curtain in the distant window has too low a vanishing-point; and that I will undertake, if need be, to point out and prove a dozen worse errors in perspective in any twelve pictures, containing architecture, taken at random from among the works of the popular painters of the day.

Secondly: that, putting aside the small Mulready, and the works of Thorburn and Sir W. Ross, and perhaps some others of those in the miniature room which I have not examined, there is not a single study of drapery in the whole Academy, be it in large works or small, which for perfect truth, power, and finish could be compared for an instant with the black sleeve of the Julia, or with the velvet on the breast and the chain mail of the Valentine, of Mr. Hunt's picture; or with the white draperies on the table of Mr. Millais' "Mariana," and of the right-hand figure in the same painter's "Dove returning to the Ark."

And further: that as studies both of drapery and of every minor detail, there has been nothing in art so earnest or so complete as these pictures since the days of Albert Durer. This I assert generally and fearlessly. On the other hand, I am perfectly ready to admit that Mr. Hunt's "Sylvia" is not a person whom Proteus or any one else would have been likely to fall in love with at first sight; and that one cannot feel very sincere delight that Mr. Millais' "Wives of the Sons of Noah" should have escaped the Deluge; with many other faults besides, on which I will not enlarge at present, because I have already occupied too much of your valuable space, and I hope to enter into more special criticism in a future letter.

I have the honor to be, Sir,

Your obedient servant,

THE AUTHOR OF "MODERN PAINTERS."

DENMARK HILL, *May* 9.

[From "The Times," May 30, 1851.]

THE PRE-RAPHAELITE BRETHREN.

To the Editor of "The Times."

SIR: Your obliging insertion of my former letter encourages me to trouble you with one or two further notes respecting the pre-Raphaelite pictures. I had intended, in continuation of my first letter, to institute as close an inquiry as I could into the character of the morbid tendencies which prevent these works from favorably arresting the attention of the public; but I believe there are so few pictures in the Academy whose reputation would not be grievously diminished by a deliberate inventory of their errors, that I am disinclined to undertake so ungracious a task with respect to this or that particular work. These points, however, may be noted, partly for the consideration of the painters themselves, partly that forgiveness of them may be asked from the public in consideration of high merits in other respects.

The most painful of these defects is unhappily also the most prominent—the commonness of feature in many of the

principal figures. In Mr. Hunt's "Valentine defending Sylvia," this is, indeed, almost the only fault. Further examination of this picture has even raised the estimate I had previously formed of its marvellous truth in detail and splendor in color; nor is its general conception less deserving of praise; the action of Valentine, his arm thrown round Sylvia, and his hand clasping hers at the same instant as she falls at his feet, is most faithful and beautiful, nor less so the contending of doubt and distress with awakening hope in the half-shadowed, half-sunlit countenance of Julia. Nay, even the momentary struggle of Proteus with Sylvia just past, is indicated by the trodden grass and broken fungi of the foreground. But all this thoughtful conception, and absolutely inimitable execution, fail in making immediate appeal to the feelings, owing to the unfortunate type chosen for the face of Sylvia. Certainly this cannot be she whose lover was

> "As rich in having such a jewel,
> As twenty seas, if all their sands were pearl." [1]

Nor is it, perhaps, less to be regretted that, while in Shakspeare's play there are nominally "Two Gentlemen," in Mr. Hunt's picture there should only be one—at least, the kneeling figure on the right has by no means the look of a gentleman. But this may be on purpose, for any one who remembers the conduct of Proteus throughout the previous scenes will, I think, be disposed to consider that the error lies more in Shakspeare's nomenclature than in Mr. Hunt's ideal.

No defence can, however, be offered for the choice of features in the left-hand figure of Mr. Millais' "Dove returning to the Ark." I cannot understand how a painter so sensible of the utmost refinement of beauty in other objects should deliberately choose for his model a type far inferior to that of average humanity, and unredeemed by any expression save that of dull self-complacency. Yet, let the spectator who desires to be just turn away from this head, and contemplate

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[1] Two Gentlemen of Verona, Act ii. sc. 4. The scene of the picture was taken from Act v. sc. 4.

rather the tender and beautiful expression of the stooping figure, and the intense harmony of color in the exquisitely finished draperies ; let him note also the ruffling of the plumage of the wearied dove, one of its feathers falling on the arm of the figure which holds it, and another to the ground, where, by the bye, the hay is painted not only elaborately, but with the most perfect ease of touch and mastery of effect, especially to be observed because this freedom of execution is a modern excellence, which it has been inaccurately stated that these painters despise, but which, in reality, is one of the remarkable distinctions between their painting and that of Van Eyck or Hemling, which caused me to say in my first letter that "those knew little of ancient painting who supposed the works of these men to resemble it."

Next to this false choice of feature, and in connection with it, is to be noted the defect in the coloring of the flesh. The hands, at least in the pictures in Millais, are almost always ill painted, and the flesh tint in general is wrought out of crude purples and dusky yellows. It appears just possible that much of this evil may arise from the attempt to obtain too much transparency—an attempt which has injured also not a few of the best works of Mulready. I believe it will be generally found that close study of minor details is unfavorable to flesh painting ; it was noticed of the drawing by John Lewis, in the old water-color exhibition of 1850,[1] (a work which, as regards its treatment of detail, may be ranged in the same class with the pre-Raphaelite pictures), that the faces were the worst painted portions of the whole.

The apparent want of shade is, however, perhaps the fault which most hurts the general eye. The fact is, nevertheless, that the fault is far more in the other pictures of the Academy than in the pre-Raphaelite ones. It is the former that are

[1] The Hhareem (No. 147), noticed, partly to the above effect, in The Times, May 1, 1850. It will be remembered that John Lewis is, with Turner, Millais, Prout, Mulready, and Edwin Landseer, one of the artists particularly mentioned in Mr. Ruskin's pamphlet on "Pre-Raphaelism" (1851), p. 33 ; and see also Academy Notes, III., 1857, p. 48.

false, not the latter, except so far as every picture must be false which endeavors to represent living sunlight with dead pigments. I think Mr. Hunt has a slight tendency to exaggerate reflected lights; and if Mr. Millais has ever been near a piece of good painted glass, he ought to have known that its tone is more dusky and sober than that of his Mariana's window. But for the most part these pictures are rashly condemned because the only light which we are accustomed to see represented is that which falls on the artist's model in his dim painting room, not that of sunshine in the fields.

I do not think I can go much further in fault-finding. I had, indeed, something to urge respecting what I supposed to be the Romanizing tendencies of the painters; but I have received a letter assuring me that I was wrong in attributing to them anything of the kind; whereupon, all that I can say is that, instead of the "pilgrimage" of Mr. Collins' maiden over a plank and round a fish-pond, that old pilgrimage of Christiana and her children towards the place where they should "look the Fountain of Mercy in the face," would have been more to the purpose in these times. And so I wish them all heartily good-speed, believing in sincerity that if they temper the courage and energy which they have shown in the adoption of their systems with patience and discretion in framing it, and if they do not suffer themselves to be driven by harsh or careless criticism into rejection of the ordinary means of obtaining influence over the minds of others, they may, as they gain experience, lay in our England the foundations of a school of art nobler than the world has seen for three hundred years.[1]

I have the honor to be, Sir,
Your obedient servant,
THE AUTHOR OF "MODERN PAINTERS."

DENMARK HILL, *May* 26.

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[1] "I have great hope that they may become the foundation of a more earnest and able school of art than we have seen for centuries."—Modern Painters, vol. i., p. 415, note.

[From "The Times," May 5, 1854.]

THE LIGHT OF THE WORLD.

By Holman Hunt.

To the Editor of "The Times."

Sir: I trust that, with your usual kindness and liberality, you will give me room in your columns for a few words respecting the principal præ-Raphaelite picture in the Exhibition of the Royal Academy this year. Its painter is travelling in the Holy Land, and can neither suffer nor benefit by criticism. But I am solicitous that justice should be done to his work, not for his sake, but for that of the large number of persons who, during the year, will have an opportunity of seeing it, and on whom, if rightly understood, it may make an impression for which they will ever afterwards be grateful.[1]

I speak of the picture called "the Light of the World," by Mr. Holman Hunt. Standing by it yesterday for upwards of an hour, I watched the effect it produced upon the passers-by. Few stopped to look at it, and those who did almost invariably with some contemptuous expression, founded on what appeared to them the absurdity of representing the Saviour with a lantern in his hand. Now, it ought to be remembered that, whatever may be the faults of a præ-Raphaelite picture, it must at least have taken much time; and therefore it may not unwarrantably be presumed that conceptions which are to be laboriously realized are not adopted in the first instance without some reflection. So that the spectator may surely question with himself whether the objections which now strike every one in a moment might not possibly have occurred to the painter himself, either during the time devoted to the design of the picture, or the months of labor required

[1] Of the two pictures described in this and the following letter, The Light of the World is well known from the engraving of it by W. H. Simmons. It was originally purchased by Mr. Thomas Combe, of Oxford, whose widow has recently presented it to Keble College, where it now hangs, in the library. The subject of the second picture, which is less well known, and which has never been engraved, sufficiently appears from the letter describing it.

for its execution; and whether, therefore, there may not be some reason for his persistence in such an idea, not discoverable at the first glance.

Mr. Hunt has never explained his work to me. I give what appears to me its palpable interpretation.

The legend beneath it is the beautiful verse, "Behold, I stand at the door and knock. If any man hear my voice, and open the door, I will come in to him, and will sup with him, and he with me."—Rev. iii. 20. On the left-hand side of the picture is seen this door of the human soul. It is fast barred: its bars and nails are rusty; it is knitted and bound to its stanchions by creeping tendrils of ivy, showing that it has never been opened. A bat hovers about it; its threshold is overgrown with brambles, nettles, and fruitless corn—the wild grass "whereof the mower filleth not his hand, nor he that bindeth the sheaves his bosom." Christ approaches it in the night-time—Christ, in his everlasting offices of prophet, priest, and king. He wears the white robe, representing the power of the Spirit upon him; the jewelled robe and breast-plate, representing the sacerdotal investiture; the rayed crown of gold, inwoven with the crown of thorns; not dead thorns, but now bearing soft leaves, for the healing of the nations.

Now, when Christ enters any human heart, he bears with him a twofold light: first, the light of conscience, which displays past sin, and afterwards the light of peace, the hope of salvation. The lantern, carried in Christ's left hand, is this light of conscience. Its fire is red and fierce; it falls only on the closed door, on the weeds which encumber it, and on an apple shaken from one of the trees of the orchard, thus marking that the entire awakening of the conscience is not merely to committed, but to hereditary guilt.

The light is suspended by a chain, wrapt about the wrist of the figure, showing that the light which reveals sin appears to the sinner also to chain the hand of Christ.

The light which proceeds from the head of the figure, on the contrary, is that of the hope of salvation; it springs from the crown of thorns, and, though itself sad, subdued, and full of softness, is yet so powerful that it entirely melts into

the glow of it the forms of the leaves and boughs, which it crosses, showing that every earthly object must be hidden by this light, where its sphere extends.

I believe there are very few persons on whom the picture, thus justly understood, will not produce a deep impression. For my own part, I think it one of the very noblest works of sacred art ever produced in this or any other age.

It may, perhaps, be answered, that works of art ought not to stand in need of interpretation of this kind. Indeed, we have been so long accustomed to see pictures painted without any purpose or intention whatsoever, that the unexpected existence of meaning in a work of art may very naturally at first appear to us an unkind demand on the spectator's understanding. But in a few years more I hope the English public may be convinced of the simple truth, that neither a great fact, nor a great man, nor a great poem, nor a great picture, nor any other great thing, can be fathomed to the very bottom in a moment of time ; and that no high enjoyment, either in picture-seeing or any other occupation, is consistent with a total lethargy of the powers of the understanding.

As far as regards the technical qualities of Mr. Hunt's painting, I would only ask the spectator to observe this difference between true præ-Raphaelite work and its imitations. The true work represents all objects exactly as they would appear in nature in the position and at the distances which the arrangement of the picture supposes. The false work represents them with all their details, as if seen through a microscope. Examine closely the ivy on the door in Mr. Hunt's picture, and there will not be found in it a single clear outline. All is the most exquisite mystery of color ; becoming reality at its due distance. In like manner examine the small gems on the robe of the figure. Not one will be made out in form, and yet there is not one of all those minute points of green color, but it has two or three distinctly varied shades of green in it, giving it mysterious value and lustre.

The spurious imitations of præ-Raphaelite work represent the most minute leaves and other objects with sharp outlines, but with no variety of color, and with none of the conceal-

ment, none of the infinity of nature. With this spurious work the walls of the Academy are half covered; of the true school one very small example may be pointed out, being hung so low that it might otherwise escape attention. It is not by any means perfect, but still very lovely—the study of a calm pool in a mountain brook, by Mr. J. Dearle, No. 191, "Evening, on the Marchno, North Wales." [1]

I have the honor to be, Sir,

Your obedient servant,

THE AUTHOR OF "MODERN PAINTERS."

DENMARK HILL, *May* 4.

[From "The Times," May 25, 1854.]

"*THE AWAKENING CONSCIENCE.*"

By HOLMAN HUNT.

To the Editor of "The Times."

SIR: Your kind insertion of my notes on Mr. Hunt's principal picture encourages me to hope that you may yet allow me room in your columns for a few words respecting his second work in the Royal Academy, the "Awakening Conscience." Not that this picture is obscure, or its story feebly told. I am at a loss to know how its meaning could be rendered more distinctly, but assuredly it is not understood. People gaze at it in a blank wonder, and leave it hopelessly; so that, though it is almost an insult to the painter to explain his thoughts in this instance, I cannot persuade myself to leave it thus misunderstood. The poor girl has been sitting singing with her seducer; some chance words of the song, "Oft in the stilly night," have struck upon the numbed places of her heart; she has started up in agony; he, not seeing her face,

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[1] Mr. Dearle informs me that this picture was bought from the walls of the Academy by a prize-holder in the Art Union of London. He adds that the purchaser resided in either America or Australia, and that the picture is now, therefore, presumably in one or other of those countries.

goes on singing, striking the keys carelessly with his gloved hand.

I suppose that no one possessing the slightest knowledge of expression could remain untouched by the countenance of the lost girl, rent from its beauty into sudden horror; the lips half open, indistinct in their purple quivering; the teeth set hard; the eyes filled with the fearful light of futurity, and with tears of ancient days. But I can easily understand that to many persons the careful rendering of the inferior details in this picture cannot but be at first offensive, as calling their attention away from the principle subject. It is true that detail of this kind has long been so carelessly rendered, that the perfect finishing of it becomes a matter of curiosity, and therefore an interruption to serious thought. But, without entering into the question of the general propriety of such treatment, I would only observe that, at least in this instance, it is based on a truer principle of the pathetic than any of the common artistical expedients of the schools. Nothing is more notable than the way in which even the most trivial objects force themselves upon the attention of a mind which has been fevered by violent and distressful excitement. They thrust themselves forward with a ghastly and unendurable distinctness, as if they would compel the sufferer to count, or measure, or learn them by heart. Even to the mere spectator a strange interest exalts the accessories of a scene in which he bears witness to human sorrow. There is not a single object in all that room—common, modern, vulgar (in the vulgar sense, as it may be), but it becomes tragical, if rightly read. That furniture so carefully painted, even to the last vein of the rosewood—is there nothing to be learnt from that terrible lustre of it, from its fatal newness; nothing there that has the old thoughts of home upon it, or that is ever to become a part of home? Those embossed books, vain and useless,—they also new,—marked with no happy wearing of beloved leaves; the torn and dying bird upon the floor; the gilded tapestry, with the fowls of the air feeding on the ripened corn; the picture above the fireplace, with its single drooping figure—the woman taken in adultery; nay, the very hem of the

poor girl's dress, at which the painter has labored so closely, thread by thread, has story in it, if we think how soon its pure whiteness may be soiled with dust and rain, her outcast feet failing in the street; and the fair garden flowers, seen in that reflected sunshine of the mirror—these also have their language—

> "Hope not to find delight in us, they say,
> For we are spotless, Jessy—we are pure."[1]

I surely need not go on. Examine the whole range of the walls of the Academy,—nay, examine those of all our public and private galleries,—and while pictures will be met with by the thousand which literally tempt to evil, by the thousand which are directed to the meanest trivialities of incident or emotion, by the thousand to the delicate fancies of inactive religion, there will not be found one powerful as this to meet full in the front the moral evil of the age in which it is painted; to waken into mercy the cruel thoughtlessness of youth, and subdue the severities of judgment into the sanctity of compassion.

I have the honor to be, Sir,
Your obedient servant,
THE AUTHOR OF "MODERN PAINTERS."

DENMARK HILL.

[From "The Liverpool Albion," January 11, 1858.]

PRE-RAPHAELITISM IN LIVERPOOL.[2]

I BELIEVE the Liverpool Academy has, in its decisions of late years, given almost the first instance on record of the entirely just and beneficial working of academical system. Usually

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[1] Shenstone: Elegy xxvi. The subject of the poem is that of the picture described here. The girl speaks—

> "If through the garden's flowery tribes I stray,
> Where bloom the jasmines that could once allure,
> Hope not," etc.

[2] The prize of the Liverpool Academy was awarded in 1858 to Millais's Blind Girl. Popular feeling, however, favored another picture, the Waiting for the Verdict of A. Solomon, and a good deal of discussion

such systems have degenerated into the application of formal rules, or the giving partial votes, or the distribution of a partial patronage; but the Liverpool awards have indicated at once the keen perception of new forms of excellence, and the frank honesty by which alone such new forms can be confessed and accepted. I do not, however, wonder at the outcry. People who suppose the pre-Raphaelite work to be only a condition of meritorious eccentricity, naturally suppose, also, that the consistent preference of it can only be owing to clique. Most people look upon paintings as they do on plants or minerals, and think they ought to have in their collections specimens of everybody's work, as they have specimens of all earths or flowers. They have no conception that there is such a thing as a real right and wrong, a real bad and good, in the question. However, you need not, I think, much mind. Let the Academy be broken up on the quarrel; let the Liverpool people buy whatever rubbish they have a mind to; and when they see, as in time they will, that it *is* rubbish, and find, as find they will, every pre-Raphaelite picture gradually advance in influence and in value, you will be acknowledged to have borne a witness all the more noble and useful, because it seemed to end in discomfiture; though it will *not* end in discomfiture. I suppose I need hardly say anything of my own estimate of the two pictures on which the arbitrament has arisen. I have surely said often enough, in good black type already, what I thought of pre-Raphaelite works, and of other modern ones. Since Turner's death I consider that any average work from the hand of any of the four leaders of pre-Raphaelitism (Rossetti, Millais, Hunt, John Lewis) is, singly, worth at least *three* of any other pictures whatever by living artists. JOHN RUSKIN.

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arose as to whether the prize had been rightly awarded. As one of the judges, and as a member of the Academy, Mr. Alfred Hunt addressed a letter on the matter to Mr. Ruskin, the main portion of whose reply was sent by him to the Liverpool Albion and is now reprinted here. Mr. Solomon's picture had been exhibited in the Royal Academy of 1857 (No. 562), and is mentioned in Mr. Ruskin's Notes to the pictures of that year (p. 32).

[From "The Witness" (Edinburgh), March 27, 1858.]

GENERALIZATION AND THE SCOTCH PRE-RAPHAELITES.

To the Editor of the "Witness."

I WAS very glad to see that good and firm defence of the pre-Raphaelite Brothers in the *Witness*[1] the other day; only my dear Editor, it appears to me that you take too much trouble in the matter. Such a lovely picture as that of Waller Paton's must either speak for itself, or nobody can speak for it. If you Scotch people don't know a bit of your own country when you see it, who is to help you to know it? If, in that mighty wise town of Edinburgh, everybody still likes flourishes of brush better than ferns, and dots of paint better than birch leaves, surely there is nothing for it but to leave them in quietude of devotion to dot and faith in flourish. At least I can see no other way of dealing. All those platitudes from the *Scotsman*, which you took the pains to answer, have been answered ten thousand times already, without the smallest effect—the kind of people who utter them being always too misty in their notions ever to feel or catch an answer. You may as well speak to the air, or rather to a Scotch mist. The oddest part of the business is, that all those wretched fallacies about generalization might be quashed or crushed in an instant, by reference to any given picture of any great master who ever lived. There never was anybody who generalized, since paint was first ground, except Opie, and Benjamin West, and Fuseli, and one or two other such modern stars—in their own estimates,—night-lights, in fact, extinguishing themselves, not odoriferously at daybreak, in a sputter in the saucer. Titian, Giorgione, Veronese, Tintoret, Raphael, Leonardo, Correggio—never any of them dreamt of

[1] The defence was made in a second notice (March 6, 1858) of the Exhibition of the Royal Scottish Academy, then open to the public. The picture of Mr. Waller Paton (now R. S. A.) alluded to here was entitled Wild Water Inveruglass (161); he also exhibited one of Arrochar Road, Tarbet (314). The platitudes of the Scotsman against the pre-Raphaelites were contained in its second notice of the Exhibition (February 20, 1858).

generalization, and would have rejected the dream as having come by the horn gate,[1] if they had. The only difference between them and the pre-Raphaelites is, that the latter love nature better, and don't yet know their artist's business so well, having everything to find out for themselves athwart all sorts of contradiction, poor fellows; so they are apt to put too much into their pictures—for love's sake, and then not to bring this much into perfect harmony; not yet being able to bridle their thoughts entirely with the master's hand. I don't say therefore—I never have said—that their pictures are faultless—many of them have gross faults; but the modern pictures of the generalist school, which are opposed to them, have nothing else but faults: they are not pictures at all, but pure daubs and perfect blunders; nay, they have never had aim enough to be called anything so honorable as blunders; they are mere emptinesses and idlenesses—thistledown without seeds, and bubbles without color; whereas the worst pre-Raphaelite picture has something *in* it; and the great ones, such as Windus's "Burd Helen,"[2] will hold their own with the most noble pictures of all time.

Always faithfully yours,

J. Ruskin.

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[1] There must be some error here, as it is the *true* dreams that come through the horn gate, while the fruitless ones pass through the gate of *ivory*. The allusion is to Homer (Odyssey, xix. 562).

[2] In illustration of the old Scottish ballad of "Burd Helen," who, fearing her lover's desertion, followed him, dressed as a foot-page, through flood, if not through fire—

"Lord John he rode, Burd Helen ran,
The live-lang sumer's day,
Until they cam' to Clyde's Water,
Was filled frae bank to brae.

"'See'st thou yon water, Helen,' quoth he,
'That flows frae bank to brim?'
'I trust to God, Lord John,' she said,
'You ne'er will see me swim.'"

This picture (No. 141 in the Edinburgh Exhibition of 1858) was first exhibited in the Royal Academy of 1856. In the postscript to his Academy Notes of that year, Mr. Ruskin, after commenting on the

By the way, what ails you at our pre-Raphaelite Brothers' conceits? Windus's heart's-ease might have been a better conceit, I grant you ;[1] but for the conceits themselves, as such, I always enjoy them particularly ; and I don't understand why I shouldn't. What's wrong in them?

"crying error of putting it nearly out of sight," so that he had at first hardly noticed it, estimates this picture as second only to the Autumn Leaves of Mr. Millais in that exhibition. The following is a portion of his comment on it: "I see just enough of the figures to make me sure that the work is thoughtful and intense in the highest degree. The pressure of the girl's hand on her side ; her wild, calm, firm, desolate look at the stream—she not raising her eyes as she makes her appeal, for fear of the greater mercilessness in the human look than in the glaze of the gliding water—the just choice of the type of the rider's cruel face, and of the scene itself—so terrible in haggardness of rattling stones and ragged heath,—are all marks of the action of the very grandest imaginative power, shortened only of hold upon our feelings, because dealing with a subject too fearful to be for a moment believed true."

The picture was originally purchased by Mr. John Miller, of Liverpool ; at the sale of whose collection by Christie and Manson, two years later, in 1858, it fetched the price of two hundred guineas. At the same sale the Blind Girl, alluded to in the previous letter, was sold for three hundred.

For the poem illustrated by the picture, see Aytoun's Ballads of Scotland, i. 239, where a slightly different version of it is given: it may also be found in Percy's Reliques (vol. iii. p. 59), under the title of Child Waters. Other versions of this ballad, and other ballads of the same name, and probable origin may be found in Jameson's collection, vol. i. p. 117, vol. ii. p. 376, in Buchan's Ancient Ballads of the North, ii. 29 (1879 ed.) and in Four Books of Scottish Ballads, Edin., 1868, Bk. ii. p. 21, where it is well noted that "Burd Helen" corresponds to the Proud Elise" of northern minstrels, "La Prude Dame Elise" of the French, and the "Gentle Lady Elise" of the English—(Burd, Prud, Preux). It is also possible that it is a corruption of Burdalayn, or Burdalane, meaning an only child, a maiden, etc.

[1] The Witness had objected to the "astonishing fondness" of the pre-Raphaelite school for "conceits," instancing as typically far-fetched that in the picture of "Burd Helen," where the Lord John was represented "pulling to pieces a heart's-ease," as he crosses the stream.

IV.—TURNER.

[From "The Times," October 28, 1856.]

THE TURNER BEQUEST.

To the Editor of "The Times."

Sir: As active measures are being now[1] taken to give the public access to the pictures and drawings left by the late Mr. Turner, you will perhaps allow me space in your columns for a few words respecting them.

I was appointed by Mr. Turner one of his executors. I examined the will, and the state of the property needing administration, and, finding that the questions arising out of the obscurity of the one and the disorder of the other would be numerous and would involve a kind of business in which I had no skill or knowledge, I resigned the office; but in the course of the inquiry I catalogued the most interesting of the drawings which are now national property, and respecting these the public will, I think, be glad of more definite information than they at present possess. They are referable mainly to three classes.

1. Finished water-color drawings.
2. Studies from nature, or first thoughts for pictures; in color.
3. Sketches in pencil or pen and ink.

The drawings belonging to the two latter classes are in various stages of completion, and would contain, if rightly arranged, a perfect record of the movements of the master's mind during his whole life. Many of them were so confused among prints and waste-paper that I could neither collect nor catalogue them all in the time I had at my disposal; some portfolios I was not able even to open. The following state-

[1] The first exhibition of Turner's pictures after his death was opened at Marlborough House early in November, 1856, seven months subsequent to the final decision as to the proper distribution of the property, which was the subject of Turner's will.

ment, therefore, omits mention of many, and I believe even of some large water-color drawings. There are in the first class forty-five drawings of the "Rivers of France;" fifty-seven illustrating Rogers' Poems; twenty-three of the "River Scenery" and "Harbors of England;" four marine vignettes; five middle-sized drawings (including the beautiful "Ivy Bridge"); and a drawing, some three feet by two, finished with exquisite care, of a scene in the Val d'Aosta; total, 135.

It would occupy too much of your space if I were to specify all the various kinds of studies forming the second class. Many are far carried, and are, to my mind, more precious and lovely than any finished drawings; respecting some, there may be question whether Turner regarded them as finished or not. The larger number are light sketches, valuable only to artists, or to those interested in the processes of Turner's mind and hand. The total number of those which I catalogued as important is 1,757.

The sketches of the third class are usually more elaborate than the colored ones. They consist of studies from nature, or for composition, in firm outline, usually on gray paper, heightened with white. They include, among other subjects, more or less complete, fifty of the original drawings for the Liber Studiorum, and many of the others are of large folio size. The total of those I consider important is 1,322. Now the value of these sketches to the public consist greatly, first, in the preservation of each, as far as possible, in the state in which Turner left it; secondly, in their careful arrangement and explanation; thirdly, in convenience of general access to them. Permit me a word on each of these heads.

Turner was in the habit of using unusual vehicles, and in the colored studies many hues are wrought out by singular means and with singular delicacy—nearly always in textures which the slightest damp (to which the drawings would necessarily be subjected in the process of mounting) would assuredly alter. I have made many experiments in mounting, putting colored drawings, of which I had previously examined the tones, into the hands of the best mounters, and I have never yet had a drawing returned to me without alteration.

The vast mass of these sketches, and the comparative slightness of many, would but too probably induce a carelessness and generalization in the treatment they might have to undergo still more fatally detrimental to them.

Secondly, a large number are without names, and so slight that it requires careful examination and somewhat extended acquaintance with Turner's works to ascertain their intention. The sketches of this class are nearly valueless, till their meaning is deciphered, but of great interest when seen in their proper connection. Thus there are three progressive studies for one vignette in *Rogers' Italy*[1] (Hannibal passing the Alps), which I extricated from three several heaps of other mountain sketches with which they had no connection. Thirdly, a large number of the drawings are executed with body color, the bloom of which any friction or handling would in a short period destroy. Their delicate tones of color would be equally destroyed by continuous exposure to the light or to smoke and dust.

Drawings of a valuable character, when thus destructible, are in European museums hardly accessible to the general public. But there is no need for this seclusion. They should be inclosed each in a light wooden frame, under a glass the surface of which a raised mount should prevent them from touching. These frames should slide into cases containing about twelve drawings each, which would be portable to any part of the room where they were to be seen. I have long kept my own smaller Turner drawings in this manner; fifteen frames going into the depth of about a foot. Men are usually accused of "bad taste," if they express any conviction of their own ability to execute any given work. But it would perhaps be better if in people's sayings in general, whether concerning others or themselves, there were less taste, and more truth; and I think it, under the circumstances, my duty to state that I believe none would treat these drawings with more scrupulous care, or arrange them with greater patience, than I should myself; that I am ready to undertake the task, and enter upon

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[1] See Rogers' Italy, p. 29.

it instantly; that I will furnish, in order to prove the working of the system proposed, a hundred of the frames, with their cases, at my own cost; and that within six weeks of the day on which I am permitted to begin work (illness or accident not interfering), I will have the hundred drawings arranged, framed, accompanied by a printed explanatory catalogue, and ready for public inspection. It would then be in the power of the commissioners intrusted with the administration of this portion of the national property to decide if any, or how many more of the sketches, should be exhibited in the same manner, as a large mass of the less interesting ones might be kept as the drawings are at the British Museum, and shown only on special inquiry.

I will only undertake this task on condition of the entire management of the drawings, in every particular, being intrusted to me; but I should ask the advice of Mr. Carpenter, of the British Museum,[1] on all doubtful points, and intrust any necessary operations only to the person who mounts the drawings for the British Museum.

I make this offer[2] in your columns rather than privately,

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[1] William Hookham Carpenter, for many years Keeper of the prints and drawings at the British Museum. He died in 1866.

[2] Mr. Ruskin's offer was accepted, and he eventually arranged the drawings, and, in particular, the four hundred now exhibited in one of the lower rooms of the National Gallery, and contained in the kind of cases above proposed, presented by Mr. Ruskin to the Gallery. Mr. Ruskin also printed, as promised, a descriptive and explanatory catalogue of a hundred of these four hundred drawings. (Catalogue of the Turner Sketches in the National Gallery. For private circulation. Part I. 1857.—Only one hundred copies printed, and no further parts issued.)

Writing (1858) to Mr. Norton of his whole work in arranging the Turner drawings, Mr. Ruskin said: "To show you a little what my work has been, I have fac-similed for you, as nearly as I could, one of the nineteen thousand sketches (comprised in the Turner bequest). It, like most of them, is not a sketch, but a group of sketches, made on both sides of the leaf of the note-book. The note-books vary in contents from sixty to ninety leaves: there are about two hundred books of the kind—three hundred and odd note-books in all; and each leaf has on an average this quantity of work, a great many leaves being slighter

first, because I wish it to be clearly known to the public; and also because I have no time to make representations in official ways, the very hours which I could give to the work needing to be redeemed by allowing none to be wasted in formalities

I am, Sir, your obedient servant,

J. RUSKIN.

DENMARK HILL, *Oct.* 27.

[From "The Times," July 9, 1857.]

THE TURNER BEQUEST AND THE NATIONAL GALLERY.

To the Editor of "The Times."

SIR:—I am sorry that accident has prevented my seeing the debate of Friday last[1] on the vote for the National Gallery until to-day. Will you permit me, thus late, to correct the statement made by Lord Elcho, that I offered to arrange Turner's pictures, or could have done so as well as Mr. Wornum?[2] I only offered to arrange the sketches, and that I am doing; but I never would have undertaken the pictures, which were in such a state of decay that I had given up many for lost; while, also, most of them belonged to periods of Turner's work with which I was little acquainted. Mr. Wornum's patience and carefulness of research in discovering their subjects, dates of exhibition, and other points of interest connected with them, have been of the greatest service; and it will be long

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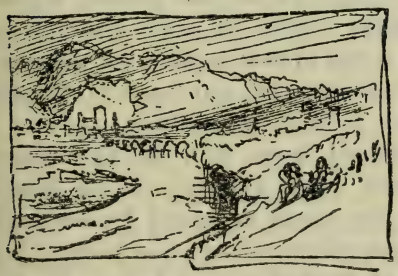
some blank, but a great many also elaborate in the highest degree, some containing ten exquisite compositions on each side of the leaf, thus (see facsimile), each no bigger than this—and with about that quantity of work in each, but every touch of it inestimable, done with his whole soul in it. Generally the slighter sketches are written over it everywhere, as in the example inclosed, every incident being noted that was going on at the moment of the sketch."—List of Turner's Drawings shown in connection with Mr. Norton's Lectures. Boston: 1874. p. 11. The facsimile alluded to by Mr. Norton is reproduced opposite.

[1] July 3, 1857, upon the vote of £23,165 for the National Gallery.

[2] The late Mr. Ralph Nicholson Wornum, who succeeded Mr. Uwins as Keeper of the National Gallery in 1855, and retained that office till his death in 1878.

of work a great many leaves being lighter — some blanks but a great many also elaborate in the highest degree — some containing ten exquisite compositions on each side of the leaf others. each one bigger than this —





and with about that quantity of work in each — but every touch of it inestimable, done with the whole soul in it. Generally the chapters & letters are written over everywhere. as in the examples enclosed, every incident being noted that was going on at the moment by the sketch.

before the labor and judgment which he has shown in compiling, not only this, but all the various catalogues now used by the public at our galleries, will be at all justly appreciated. I find more real, serviceable, and trustworthy facts in one of these catalogues, than in half a dozen of the common collections of lives of painters.

Permit me to add further, that during long residence in Venice I have carefully examined the Paul Veronese lately purchased by the Government.[1] When I last saw it, it was simply the best Veronese in Italy, if not in Europe (the "Marriage in Cana" of the Louvre is larger and more magnificent, but not so perfect in finish); and, for my own part, I should think no price too large for it; but putting my own deep reverence for the painter wholly out of the question, and considering the matter as it will appear to the most persons at all acquainted with the real character and range of Venetian work, I believe the market value of the picture ought to be estimated at perhaps one-third more than the Government have paid for it. Without doubt the price of the Murillo lately purchased at Paris was much enhanced by accidental competition; under ordinary circumstances, and putting both the pictures to a fair trial of market value, I believe the Ver-

[1] The Family of Darius at the feet of Alexander after the Battle of Issus, purchased at Venice from the Pisani collection in 1857. Lord Elcho had complained in the course of the debate that the price, £13,-650, paid for this picture, had been excessive; and in reply allusion was made to the still higher price (£23,000) paid for the Immaculate Conception of Murillo, purchased for the Louvre by Napoleon III., in 1852, from the collection of Marshal Soult. Of the great Veronese, Mr. Ruskin also wrote thus: "It at once, to my mind, raises our National Gallery from a second-rate to a first-rate collection. I have always loved the master, and given much time to the study of his works, but this is the best I have ever seen." (Turner Notes, 1857, ed. v. p. 89, note.) So again before the National Gallery Commission, earlier in the same year, he had said, "I am rejoiced to hear (of its rumored purchase). If it is confirmed, nothing will have given me such pleasure for a long time. I think it is the most precious Paul Veronese in the world, as far as the completeness of the picture goes, and quite a priceless picture."

onese to be worth at least double the Murillo ; in an artistical point of view, the latter picture could not be put in any kind of comparison whatever with the Veronese.

I am, Sir, your obedient servant,

J. Ruskin.

Oxford, *July* 7.

[From "The Literary Gazette," November 13, 1858—partly reprinted in "The Two Paths," Appendix iv.]

THE TURNER SKETCHES AND DRAWINGS.[1]

To the Editor of "The Literary Gazette."

Sir : I do not think it generally necessary to answer criticism ; yet as yours is the first sufficient notice which has been taken of the important collection of sketches at Marlborough House, and as your strictures on the arrangement proposed for the body of the collection, as well as on some statements in my catalogue, are made with such candor and good feeling, will you allow me to offer one or two observations in reply to them ? The mode of arrangement to which you refer as determined on by the trustees has been adopted, not to discourage the study of the drawings by the public, but to put all more completely at their service. Drawings so small in size and so delicate in execution cannot be seen, far less copied, when hung on walls. As now arranged, they can be put into the hands of each visitor, or student, as a book is into those of a reader ; he may examine them in any light, or in any position, and copy them at his ease. The students who work from drawings exhibited on walls will, I am sure, bear willing witness to the greater convenience of the new system.

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[1] The present letter was written in reply to a criticism, contained in the Literary Gazette of November 6, 1858, on Mr. Ruskin's Catalogue of the Turner Sketches and Drawings exhibited at Marlborough House 1857–8. The subjects of complaint made by the Gazette sufficiently appear from this letter. They were, briefly, first, the mode of exhibition of the Turner Drawings proposed by Mr. Ruskin in his official report already alluded to, pp. 84 and 88. note ; and, secondly, two alleged hyperboles and one omission in the Catalogue itself.

Four hundred drawings are already thus arranged for public use ; framed, and disposed in eighty portable boxes, each containing five sketches, so that eighty students might at once be supplied with five drawings apiece. The oil paintings at Marlborough House, comprising as they do the most splendid works which Turner ever produced, and the 339 drawings exhibited beside them, are surely enough for the amusement of loungers—for do you consider as anything better than loungers those persons who do not care enough for the Turner drawings to be at the trouble of applying for a ticket of admission, and entering their names in a book—that is to say, who will not, to obtain the privilege of quiet study of perfect art, take, once for all, as much trouble as would be necessary to register a letter, or book, or parcel?

I entirely waive for the moment the question of exposure to light. I put the whole issue on the ground of greatest public convenience. I believe it to be better for the public to have two collections of Turner's drawings than one ; nay, it seems to me just the perfection of all privilege to have one gallery for quiet, another for disquiet ; one into which the curious, idle, or speculative may crowd on wet or weary days, and another in which people desirous of either thinking or working seriously may always find peace, light, and elbow-room. I believe, therefore, that the present disposition of these drawings will be at once the most convenient and the most just, even supposing that the finest works of Turner would not be injured by constant exposure. But that they would be so admits of no debate. It is not on my judgment nor on any other unsupported opinion, that the trustees have acted, but in consideration of facts now universally admitted by persons who have charge of drawings. You will find that the officers both of the Louvre and of the British Museum refuse to expose their best drawings or missal-pages to light, in consequence of ascertained damage received by such drawings as have been already exposed ; and among the works of Turner I am prepared to name an example in which, the frame having protected a portion while the rest was exposed, the covered portion is still rich and lovely in colors, while the

exposed spaces are reduced in some parts nearly to white paper, and the color in general to a dull brown.

You allude to the contrary chance that some hues may be injured by darkness. I believe that some colors are indeed liable to darken in perpetual shade, but not while occasionally exposed to moderate light, as these drawings will be in daily use ; nor is any liability to injury, even by perpetual shade, as yet demonstrable with respect to the Turner drawings ; on the contrary, those which now form the great body of the national collection were never out of Turner's house until his death, and were all kept by him in tight bundles or in clasped books ; and all the drawings so kept are in magnificent preservation, appearing as if they had just been executed, while every one of those which have been in the possession of purchasers and exposed in frames are now faded in proportion to the time and degree of their exposure ; the lighter hues disappearing, especially from the skies, so as sometimes to leave hardly a trace of the cloud-forms. For instance, the great Yorkshire series is, generally speaking, merely the wreck of what it once was.* That water-colors are not injured by darkness is also sufficiently proved by the exquisite preservation of missal paintings, when the books containing them have been little used. Observe, then, you have simply this question to put to the public : "Will you have your Turner drawings to look at when you are at leisure, in a comfortable room, under such limitations as will preserve them to you forever, or will you make an amusing exhibition of them (*if* amusing, which I doubt) for children and nursery-maids ; dry your wet coats by them, and shake off the dust from your feet upon them, for a score or two of years, and then send them to the waste-paper merchant?" That is the simple question ; answer it, for the public, as you think best.

Permit me to observe farther, that the small interest manifested in the existing Turner collection at Marlborough House does not seem to justify any further effort at exhibition.

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* The cloud-forms which have disappeared from the drawings may be seen in the engravings.

There are already more paintings and drawings placed in those rooms than could be examined properly in years of labor. But how placed? Thrust into dark corners, nailed on spare spaces of shutters, backs of doors, and tottering elongations of screens; hung with their faces to the light, or with their backs to the light, or with their sides to the light, so that it "rakes" them (I use an excellent expression of Sir Charles Eastlake's), throwing every irregularity of surface into view as if they were maps in relief of hill countries; hung, in fine, in every conceivable mode that can exhibit their faults, or conceal their meaning, or degrade their beauty. Neither Mr. Wornum nor I are answerable for this; we have both done the best we could under the circumstances; the public are answerable for it, who suffer such things without care and without remonstrance. If they want to derive real advantage from the treasures they possess, let them show some regard for them, and build, or at least express some desire to get built, a proper gallery for them. I see no way at present out of the embarrassments which exist respecting the disposition of the entire national collection; but the Turner gallery was intended by Turner himself to be a distinct one, and there is no reason why a noble building should not be at once provided for it. Place the oil pictures now at Marlborough House in beautiful rooms, each in a light fit and sufficient for it, and all on a level with the eye; range them in chronological order; place the sketches at present exhibited, also in chronological order, in a lateral gallery; let illustrative engravings and explanations be put in cases near them; furnish the room richly and gracefully, as the Louvre is furnished, and I do not think the public would any longer complain of not having enough to amuse them on rainy days.

That we ought to do as much for our whole national collection is as certain as that we shall not do it for many a year to come, nor until we have wasted twice as much money as would do it nobly in vain experiments on a mean scale. I have no immediate hope in this matter, else I might perhaps ask you to let me occupy your columns with some repetition, in other words (such repetition being apparently always

needed in these talking days), of what I have already stated in the Appendix to my Notes on the oil-pictures [1] at Marlborough House. But I will only, being as I say hopeless in the matter, ask you for room for a single sentence.

"If ever we come to understand that the function of a picture, after all, with respect to mankind, is not merely to be bought, but to be seen, it will follow that a picture which deserves a price deserves a place; and that all paintings which are worth keeping, are worth, also, the rent of so much wall as shall be necessary to show them to the best advantage, and in the least fatiguing way for the spectator.

"It would be interesting if we could obtain a return of the sum which the English nation pays annually for park walls to inclose game, stable walls to separate horses, and garden walls to ripen peaches; and if we could compare this ascertained sum with what it pays for walls to show its art upon."

I ask you to reprint this, because the fact is that if either Mr. Wornum at the National Gallery, or Mr. Carpenter at the British Museum, had as much well-lighted wall at their disposal as most gentlemen's gardeners have, they could each furnish the public with art enough to keep them gazing from one year's end to another's. Mr. Carpenter has already made a gallant effort with some screens in a dark room; but in the National Gallery, whatever mode of exhibition may be determined upon for the four hundred framed drawings, the great mass of the Turner sketches (about fifteen thousand, without counting mere color memoranda) must lie packed in parcels in tin cases, simply for want of room to show them. It is true that many of these are quite slight, and would be interesting to none but artists. There are, however, upwards of five thousand sketches in pencil outline,* which are just as inter-

[1] "Notes on the *oil* pictures," to be distinguished from the later catalogue of the Turner sketches and drawings with which this letter directly deals. See ante, p. 91, note.

* By the way, you really ought to have given me some credit for the swivel frames in the desks of Marlborough House,

esting as those now exhibited at Marlborough House; and which might be constantly exhibited, like those, without any harm, if there were only walls to put them on.

I have already occupied much of your space. I do not say too much, considering the importance of the subject, but[2] I must [with more diffidence] ask you to allow me yet leave to reply to the objections you make to two statements [and to one omission] in my Catalogue, as those objections would otherwise diminish its usefulness. I have asserted that in a given drawing (named as one of the chief in the series), Turner's pencil did not move over the thousandth of an inch without meaning; and you charge this expression with extravagant hyperbole. On the contrary, it is much within the truth, being merely a mathematically accurate description of fairly good execution in either drawing or engraving. It is only necessary to measure a piece of any ordinarily good work to ascertain this. Take, for instance, Finden's engraving at the 180th page of Rogers' poems,[3] in which the face of the figure, from the chin to the top of the brow, occupies just a quarter of an inch, and the space between the upper lip and chin as nearly as possible one-seventeenth of an inch. The whole mouth occupies one-third of this space, say, one-fiftieth of an inch; and within that space both the lips and the much more difficult inner corner of the mouth are perfectly drawn and rounded, with quite successful and sufficiently subtle ex-

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which enable the public, however rough-handed, to see the drawings on both sides of the same leaf.[1]

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[1] The identical frames, each containing examples of the sketches in pencil outline to which the letter alludes, may be seen in the windows of the lower rooms of the National Gallery, now devoted to the exhibition of the Turner drawings.

[2] The rest of this letter may, with the exception of its two last paragraphs, and the slight alterations noted, be also found in The Two Paths, Appendix iv., Subtlety of Hand (pp. 226–9 of the now, and pp 263–6 of the original edition), where the words bracketed [sic] in this reprint of it are, it will be seen, omitted.

[3] From a vignette design by Stothard of a single figure, to illustrate the poem On a Tear. (Rogers' Poems, London, 1834 ed.)

pression. Any artist will assure you, that in order to draw a mouth as well as this, there must be more than twenty gradations of shade in the touches; that is to say, in this case, gradations changing, with meaning, within less than the thousandth of an inch.

But this is mere child's play compared to the refinement of any first-rate mechanical work, much more of brush or pencil drawing by a master's hand. In order at once to furnish you with authoritative evidence on this point, I wrote to Mr. Kingsley, tutor of Sidney-Sussex College, a friend to whom I always have recourse when I want to be precisely right in any matter; for his great knowledge both of mathematics and of natural science is joined, not only with singular powers of delicate experimental manipulation, but with a keen sensitiveness to beauty in art. His answer, in its final statement respecting Turner's work, is amazing even to me; and will, I should think, be more so to your readers. Observe the successions of measured and tested refinement; here is No. 1:

"The finest mechanical work that I know of is that done by Nobert in the way of ruling lines. I have a series of lines ruled by him on glass, giving actual scales from .000024 and .000016 of an inch, perfectly correct to these places of decimals; [*] and he has executed others as fine as .000012, though I do not know how far he could repeat these last with accuracy."

This is No. 1, of precision. Mr. Kingsley proceeds to No. 2:

"But this is rude work compared to the accuracy necessary for the construction of the object glass of a microscope such as Rosse turns out."

I am sorry to omit the explanation which follows of the ten lenses composing such a glass, "each of which must be exact in radius and in surface, and all have their axes coinci-

[* That is to say, accurate in measures estimated in *millionths* of inches.]

dent;" but it would not be intelligible without the figure by which it is illustrated, so I pass to Mr. Kingsley's No. 3:

"I am tolerably familiar," he proceeds, "with the actual grinding and polishing of lenses and specula, and have produced by my own hands some by no means bad optical work; and I have copied no small amount of Turner's work, and I still look with awe at the combined delicacy and precision of his hand; *it beats optical work out of sight.*[2] In optical work, as in refined drawing, the hand goes beyond the eye, [*] and one has to depend upon the feel; and when one has once learned what a delicate affair touch is, one gets a horror of all coarse work, and is ready to forgive any amount of feebleness, sooner than the boldness which is akin to impudence. In optics the distinction is easily seen when the work is put to trial; but here too, as in drawing, it requires an educated eye to tell the difference when the work is only moderately bad; but with 'bold' work nothing can be seen but distortion and fog, and I heartily wish the same result would follow the same kind of handling in drawing; but here, the boldness cheats the unlearned by looking like the precision of the true man. It is very strange how much better our ears are than our eyes in this country: if an ignorant man were to be 'bold' with a violin, he would not get many admirers, though his boldness was far below that of ninety-nine out of a hundred drawings one sees."

The words which I have italicized[3] in the above extract are those which were surprising to me. I knew that Turner's

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[* In case any of your readers should question the use, in drawing of work too fine for the touches to be individually, I quote a sentence from my Elements of Drawing.[1] "*All* fine coloring, like fine drawing, is delicate; so delicate, that if at last you see the color you are putting on, you are putting on too much. You ought to feel a change wrought in the general tone by touches which are individually too pale to be seen."]

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[1] See the Elements of Drawing, Letter III. on Color and Composition, p. 132.

[2] Doubly emphasized in The Two Paths, where the words are printed thus: "*I still look with awe at the combined delicacy and precision of his hand;* IT BEATS OPTICAL WORK OUT OF SIGHT."

[3] The Two Paths reprint has "put in italics.'

was as refined as any optical work, but had no idea of its going beyond it. Mr. Kingsley's word "awe," occurring just before, is, however, as I have often felt, precisely the right one. When once we begin at all to understand the work of any truly great executor, such as that of any of the three great Venetians [(Tintoret, Titian, and Veronese)], Correggio, or Turner, the awe of it is something greater than can be felt from the most stupendous natural scenery. For the creation of such a system as a high human intelligence, endowed with its ineffably perfect instruments of eye and hand, is a far more appalling manifestation of Infinite Power than the making either of seas or mountains. After this testimony to the completion of Turner's work, I need not at length defend myself from the charge of hyperbole in the statement that, "as far as I know, the galleries of Europe may be challenged to produce one sketch [1] that shall equal the chalk study No. 45, or the feeblest of the memoranda in the 71st and following frames;" [2] which memoranda, however, it should have been observed, are stated at the forty-fourth page to be in some respects "the grandest work in gray that he did in his life."

For I believe that, as manipulators, none but the four men whom I have just named (the three Venetians and Correggio) were equal to Turner; and, as far as I know, none of these four men put their full strength into sketches. But whether they did or not, my statement in the Catalogue is limited by my own knowledge, and as far as I can trust that knowledge:

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[1] The following note is here added to the reprint in The Two Paths: "A sketch, observe—not a printed drawing. Sketches are only proper subjects of comparison with each other when they contain about the same quantity of work: the test of their merit is the quantity of truth told with a given number of touches. The assertion in the Catalogue which this letter was written to defend was made respecting the sketch of Rome, No. 101."

[2] No. 45 was a Study of a Cutter. Mr. Ruskin's note to it in the Catalogue is partly as follows: "I have never seen any chalk sketch which for a moment could be compared with this for soul and power. . . . I should think that the power of it would be felt by most people; but if not, let those who do not feel its strength, try to copy it." See the Catalogue under No. 45, as also under No. 71, referred to above.

it is not an enthusiastic statement, but an entirely calm and considered one. It may be a mistake, but it is not an hyperbole.

Lastly, you object that the drawings for the "*Liber Studiorum*" are not included in my catalogue. They are not so, because I did not consider them as, in a true sense, drawings at all; they are merely washes of color laid roughly to guide the mezzotint engraver in his first process; the drawing, properly so called, was all put in by Turner when he etched the plates, or superadded by repeated touchings on the proofs. These brown "guides," for they are nothing more, are entirely unlike the painter's usual work, and in every way inferior to it; so that students wishing to understand the composition of the "*Liber*" must always work from the plates, and not from these first indications of purpose.[1] I have put good impressions of two of the plates in the same room, in order to show their superiority; and for the rest, thought it useless to increase the bulk of the Catalogue by naming subjects which have been published and well known these thirty years.[2]

Permit me, in conclusion, to thank you for drawing attention to the subject of this great national collection; and, again

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[1] In a letter to Mr. Norton written in the same year as this one to the Literary Gazette, Mr. Ruskin thus speaks of the value of these plates: "Even those who know most of art may at first look be disappointed with the Liber Studiorum. For the nobleness of these designs is not more in what *is* done than in what *is not* done in them. Every touch in these plates is related to every other, and has no permission of withdrawn, monastic virtue, but is only good in its connection with the rest, and in that connection infinitely and inimitably good. The showing how each of these designs is connected by all manner of strange intellectual chords and nerves with the pathos and history of this old English country of our, and with the history of European mind from earliest mythology down to modern rationalism and irrationalism—all this was what I meant to try and show in my closing work; but long before that closing I felt it to be impossible."—Extract from a letter of Mr. Ruskin, 1858, quoted in the "List of Turner Drawings, etc." already mentioned, p. 19.

[2] The Literary Gazette of November 20, 1858, contains a reply to this letter, but as it did not provoke a further letter from Mr. Ruskin, it is not noticed in detail here.

asking your indulgence for trespassing so far upon your space, to subscribe myself,

Very respectfully yours,

J. RUSKIN.

[From "The Times," October 21, 1859.]

THE TURNER GALLERY AT KENSINGTON.[1]

To the Editor of "The Times."

SIR: At the time of my departure for the Continent some months ago I had heard it was proposed to light the Turner Gallery, at Kensington, with gas; but I attached no importance to the rumor, feeling assured that a commission would be appointed on the subject, and that its decision would be adverse to the mode of exhibition suggested.

Such a commission has, I find been appointed; and has, contrary to my expectations, approved and confirmed the plan of lighting proposed.

It would be the merest presumption in me to expect weight to be attached to any opinion of mine, opposed to that of any one of the gentlemen who formed the commission; but as I was officially employed in some of the operations connected with the arrangement of the Turner Gallery at Marlborough House, and as it might therefore be supposed by the public that I at least concurred in recommending the measures now taken for exhibition of the Turner pictures in the evening, at Kensington, I must beg your permission to state in your columns that I take no share in the responsibility of lighting the pictures either of Reynolds or Turner with gas; that, on the contrary, my experience would lead me to apprehend serious injury to those pictures from such a measure; and that it is with profound regret that I have heard of its adoption.

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[1] There was at the date of this and the following letter an exhibition of Turner drawings at the South Kensington Museum. These pictures have, however, been since removed to the National Gallery, and the only works of Turner now at Kensington, are some half a dozen oil paintings belonging to the Sheepshanks collection, and about the same number of water-color drawings, which form part of the historical series of British water-color paintings.

I specify the pictures of Reynolds and Turner, because the combinations of coloring material employed by both these painters are various, and to some extent unknown ; and also because the body of their colors shows peculiar liability to crack, and to detach itself from the canvas. I am glad to be able to bear testimony to the fitness of the gallery at Kensington, as far as could be expected under the circumstances, for the exhibition of the Turner pictures by daylight, as well as to the excellence of Mr. Wornum's chronological arrangement of them in the three principal rooms.

I am, Sir, your obedient servant,

J. RUSKIN.

DENMARK HILL, *Oct.* 20.

P.S.—I wish the writer of the admirable and exhaustive letter which appeared in your columns of yesterday on the subject of Mr. Scott's design for the Foreign Office would allow me to know his name.[1]

[From "The Daily Telegraph," July 5, 1876.]

TURNER'S DRAWINGS.

To the Editor of "The Daily Telegraph."

SIR : I am very heartily glad to see the subject of Turner's drawings brought more definitely before the public in your

[1] This refers to a letter signed "E. A. F." which appeared in The Times of October 19, 1859, advising the adoption of Mr. Gilbert Scott's Gothic design for the Foreign Office in preference to any Classic design. The writer entered at some length into the principles of Gothic and Classic architecture, which he briefly summed up in the last sentence of his letter: "Gothic, then, is national; it is constructively real; it is equally adapted to all sorts of buildings; it is convenient; it is cheap. In none of these does Italian surpass it; in most of them it is very inferior to it." See the letters on the Oxford Museum as to the adaptability of Gothic—included in Section vi. of these Letters on Art. With regard to the cheapness of Gothic, the correspondent of The Times had pointed out that while it may be cheap and yet thoroughly good so far as it goes, Italian *must* always be costly.

remarks on the recent debate [1] in Parliament. It is indeed highly desirable that these drawings should be made more accessible, and I will answer your reference to me by putting you in possession of all the facts which it is needful that the public should know or take into consideration respecting them, in either judging what has been hitherto done by those entrusted with their care, or taking measures for obtaining greater freedom in their use. Their *use*, I say, as distinguished from the mere pleasure of seeing them. This pleasure, to the general public, is very small indeed. You appear not to be aware that three hundred of the finest examples, including all the originals of the Liber Studiorum, were framed by myself, especially for the public, in the year 1858, and have been exhibited every day, and all day long, ever since in London. But the public never stops a moment in the room at Kensington where they hang; and the damp, filth, and gas (under the former management of that institution)* soiled their frames and warped the drawings, "by friend remembered not."

You have been also misinformed in supposing that "for some years these aquarelles were unreservedly shown, and in all the fulness of daylight." Only the "Seine" series (rivers of France), the rivers of England, the harbors of England, and the Rogers' vignettes (about a hundred drawings in all), were exhibited in the dark under-room of Marlborough House, and a few larger and smaller examples scattered up and down in the room of the National Gallery, including Fort Bard, Edin-

* Now I trust, under Mr. Poynter and Mr. Sparkes undergoing thorough reform.[2]

[1] Hardly a debate. Lord Francis Hervey had recently (June 30, 1876) put a question in the House of Commons to Lord Henry Lennox (First Commissioner of Works) as to whether it was the fact that many of Turner's drawings were at that time stowed in the cellars of the National Gallery, and had never been exhibited. The Daily Telegraph in a short article on the matter (July 1, 1876) appealed to Mr. Ruskin for his opinion on the exhibition of these drawings.

[2] Mr. Poynter, R.A., was then, as now, Director, and Mr. Sparkes Head Master, of the Art School at the South Kensington Museum.

burgh, and Ivy Bridge.[1] These drawings are all finished, most of them have been engraved; they were shown as the choicest of the collection, and there is no question but that they should always be perfectly accessible to the public. There are no other finished drawings in the vast mass of the remaining material for exhibition and means of education. But these are *all* the drawings which Turner made during his lifetime, in color, chalk, pencil, and ink, for his own study or delight; that is to say, pencil sketches to be counted by the thousand (how many thousands I cannot safely so much as guess), and assuredly upwards of two thousand colored studies, many of exquisite beauty; and all instructive as no other water-color work ever was before, or has been since: besides the ink and chalk studies for all his great Academy pictures.[2]

There are in this accumulation of drawings means of education in the noblest principles of elementary art and in the most accomplished science of color for every drawing-school in England, were they properly distributed. Besides these, there are the three hundred chosen drawings already named, now at Kensington, and about two hundred more of equal value, now in the lower rooms of the National Gallery, which the Trustees permitted me to choose out of the mass, and frame for general service.

They are framed as I frame exercise-drawings at Oxford, for my own schools. They are, when in use, perfectly secure from dust and all other sources of injury; slide, when done with, into portable cabinets; are never exposed to light, but when they are being really looked at; and can be examined at his ease, measured, turned in whatever light he likes, by

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[1] For notes of these drawings see the Catalogue of the Turner Sketches and Drawings already mentioned—(*a*) The Battle of Fort Bard, Val d'Aosta, p. 32; (*b*) the Edinburgh, p. 30 and (*c*) the Ivy Bridge, Devon, p. 32.

[2] I have omitted to add to my note (p. 84) on Mr. Ruskin's arrangement of the Turner drawings a reference to his own account of the labor which that arrangement involved, and of the condition in which he found the vast mass of the sketches. See Modern Painters, vol. v., Preface, p. vi.

every student or amateur who takes the smallest interest in them. But it is necessary, for this mode of exhibition, that there should be trustworthy persons in charge of the drawings, as of the MSS. in the British Museum, and that there should be attendants in observation, as in the Print Room of the Museum, that glasses may not be broken, or drawings taken out of the frames.

Thus taken care of, and thus shown, the drawings may be a quite priceless possession to the people of England for the next five centuries; whereas those exhibited in the Manchester Exhibition were virtually destroyed in that single summer.[1] There is not one of them but is the mere wreck of what it was. I do not choose to name destroyed drawings in the possession of others; but I will name the vignette of the Plains of Troy in my own, which had half the sky baked out of it in that fatal year, and the three drawings of Richmond (Yorkshire), Egglestone Abbey, and Langharne Castle,[2] which have had by former exposure to light their rose-colors entirely destroyed, and half of their blues, leaving nothing safe but the brown.

I do not think it necessary to repeat my former statements respecting the injurious power of light on certain pigments rapidly, and on all eventually. The respective keepers of the Print Room and of the Manuscripts in the British Museum are the proper persons to be consulted on that matter, their

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[1] The Art Treasures Exhibition in 1857, being the year in which the lectures contained in the Political Economy of Art were delivered. (See A Joy for Ever—Ruskin's Works, vol. xi., p. 80.)

[2] The Plains of Troy;—see for a note of this drawing Mr. Ruskin's Notes on his own Turners, 1878, p. 45, where he describes it as "One of the most elaborate of the Byron vignettes, and full of beauty," adding that "the meaning of the sunset contending with the storm is the contest of the powers of Apollo and Athene;" and for the engraving of it, see Murray's edition of Byron's Life and Works (1832, seventeen volumes), where it forms the vignette title page of vol. vii. For the Richmond and the Egglestone Abbey, also in the possession of Mr. Ruskin, see the above mentioned Notes p 29 (Nos. 26 and 27). The Langharne Castle was formerly in the possession of Mr. W. M. Bigg, at the sale of whose collection in 1868 it was sold for £451.

experience being far larger than mine, and over longer epochs. I will, however, myself undertake to show from my own collection a water-color of the eleventh century absolutely as fresh as when it was laid—having been guarded from light; and water-color burnt by sunlight into a mere dirty stain on the paper, in a year, with the matched piece from which it was cut beside it.

The public may, therefore, at their pleasure treat their Turner drawings as a large exhibition of fireworks, see them explode, clap their hands, and have done with them; or they may treat them as an exhaustless library of noble learning. To this end, they need, first, space and proper light—north light, as clear of smoke as possible, and large windows; and then proper attendance—that is to say, well-paid librarians and servants.

The space will, of course, be difficult to obtain, for while the British public of the upper classes are always ready to pay any money whatever for space to please their pride in their own dining-rooms and ball-rooms, they would not, most of them, give five shillings a year to get a good room in the National Gallery to show the national drawings in. As to the room in which it is at present proposed to place them in the new building, they might just as well, for any good that will ever be got out of them there, be exhibited in a railway tunnel.

And the attendants will also be difficult to obtain. For—and this is the final fact to which I beg your notice—these drawings now in question were, as I above stated, framed by me in 1858. They have been perfectly "accessible" ever since, and are so now, as easily as any works [1] in the shops of Regent Street are accessible over the counter, if you have got a shopman to hand them to you. And the British public have been whining and growling about their exclusion from the sight of these drawings for the last eighteen years, simply because, while they are willing to pay for any quantity of sentinels to stand in boxes about town and country, for any

[1] A misprint for "wares;" see next letter, p. 107.

quantity of flunkeys to stand on boards for additional weight to carriage horses, and for any quantity of footmen to pour out their wine and chop up their meat for them, they would not for all these eighteen years pay so much as a single attendant to hand them the Turner drawings across the National Gallery table ; but only what was needful to obtain for two days in the week the withdrawal from his other duties in the Gallery of the old servant of Mr. Samuel Rogers.

I am, Sir, your obedient servant,

J. RUSKIN.

BRANTWOOD, *July* 3.

[From "The Daily Telegraph," July 19, 1876.]

TURNER'S DRAWINGS.

To the Editor of "The Daily Telegraph."

SIR: In justice to our living water-color artists, will you favor me by printing the accompanying letter,[1] which I think will be satisfactory to many of your readers, on points respecting which my own may have given some of them a false impression? In my former letter, permit me to correct the misprint of "works" in Regent Street for "wares."

I have every reason to suppose Mr. Collingwood Smith's knowledge of the subject entirely trustworthy ; but when all is conceded, must still repeat that no water-color work of value should ever be constantly exposed to light, or even to the air of a crowded metropolis, least of all to gaslight or its fumes.

I am, Sir, yours, etc.,

J. RUSKIN.

BRANTWOOD, CONISTON, LANCASHIRE, *July* 16.

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[1] Addressed to Mr. Ruskin by Mr. Collingwood Smith, and requesting Mr. Ruskin to state in a second letter that the remarks as to the effect of light on the water-colors of Turner did not extend to water-color drawings in general; but that the evanescence of the colors in Turner's drawings was due partly to the peculiar vehicles with which he painted, and partly to the gray paper (saturated with indigo) on which he frequently worked. Mr. Ruskin complied with this request by thus forwarding for publication Mr. Collingwood Smith's letter.

[From "The Times," April 25, 1876.]

COPIES OF TURNER'S DRAWINGS.

To the Editor of "The Times."

SIR: You will oblige me by correcting the misstatement in your columns of the 22d,[1] that "only copies of the copies" of Turner exhibited at 148 New Bond Street, are for sale. The drawings offered for sale by the company will, of course, be always made by Mr. Ward from the originals, just as much as those now exhibited as specimens.

You observe in the course of your article that "surely such attempts could not gratify any one who had a true insight for

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[1] The references to The Times allude to an article on the "Copies of Turner Drawings," by Mr. William Ward, of 2 Church Terrace, Richmond, Surrey, which were then, as now, exhibited for sale in the rooms of the Fine Art Society.

Of these copies of Turner, Mr. Ruskin says: "They are executed with extreme care under my own eye by the draughtsman trained by me for the purpose, Mr. Ward. Everything that can be learned from the smaller works of Turner may be as securely learned from these drawings. I have been more than once in doubt, seeing original and copy together, which was which; and I think them about the best works that can now be obtained for a moderate price, representing the authoritative forms of art in landscape."—Extract from letter of Mr. Ruskin, written in 1867. List of Turner Drawings, etc., shown in connection with Mr. Norton's lectures. Boston, 1874, p. 9. (See also Ariadne Florentina, p. 152, note.)

The following comment of Mr. Ruskin on one of Mr. Ward's most recent copies is also interesting as evidence that the opinions expressed in this letter are still retained by its writer: "London, 20th March, 1880.—The copy of Turner's drawing of Fluelen, which has been just completed by Mr. Ward, and shown to-day, is beyond my best hopes in every desirable quality of execution; and is certainly as good as it is possible for care and skill to make it. I am so entirely satisfied with it that, for my own personal *pleasure*—irrespective of pride, I should feel scarcely any loss in taking it home with me instead of the original; and for all uses of artistic example or instruction, it is absolutely as good as the original.—JOHN RUSKIN."—The copy in question is from a drawing in the possession of Mr. Ruskin (see the Turner Notes, 1878, No. 70), and was executed for its present proprietor, Mr. T. S. Kennedy, of Meanwoods, Leeds.

Mr. Turner's works?" But the reason that the drawings now at 148 New Bond Street are not for sale is that they *do* gratify *me*, and are among my extremely valued possessions; and if among the art critics on your staff there be, indeed, any one whose "insight for Mr. Turner's work" you suppose to be greater than mine, I shall have much pleasure in receiving any instructions with which he may favor me, at the National Gallery, on the points either in which Mr. Ward's work may be improved, or on those in which Turner is so superior to Titian and Correggio, that while the public maintain, in Italy, a nation of copyists of these second-rate masters, they are not justified in hoping any success whatever in representing the work of the Londoner, whom, while he was alive, I was always called mad for praising.

I am, Sir, your obedient servant,

JOHN RUSKIN.

PETERBOROUGH, *April* 23.

[From "The Times," January 24, 1871.]

"*TURNERS*," *FALSE AND TRUE.*

To the Editor of "The Times."

SIR: I have refused until now to express any opinion respecting the picture No. 40 [1] in the Exhibition of the Old Masters, feeling extreme reluctance to say anything which its kind owner, to whom the Exhibition owes so much, might deem discourteous.

But I did not suppose it was possible any doubt could long exist among artists as to the character of the work in question; and, as I find its authenticity still in some quarters maintained, I think no other course is open to me than to state that the picture is not by Turner, nor even by an imitator of Turner acquainted with the essential qualities of the master.

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[1] Italy, a reputed Turner, lent by the late Mr. Wynn Ellis. No. 235 was A Landscape with Cattle, in the possession of Lord Leconfield.

I am able to assert this on internal evidence only. I never saw the picture before, nor do I know anything of the channels through which it came into the possession of its present proprietor.

No. 235 is, on the contrary, one of the most consummate and majestic works that ever came from the artist's hand, and it is one of the very few now remaining which have not been injured by subsequent treatment.

I am, Sir, your obedient servant,

JOHN RUSKIN.

DENMARK HILL, *Jan.* 23.

[From "The Life of Turner," by Walter Thornbury.]

THE CHARACTER OF TURNER.[1]

[The following admonition, sent by Mr. Ruskin in 1857 to Mr. Thornbury, and coupled with the advice that for the biographer of Turner there was no time to be lost, "for those who knew him when young are dying daily," forms a fit conclusion to this division of the letters.]

FIX at the beginning the following main characteristics of Turner in your mind, as the keys to the secret of all he said and did:

Uprightness.
Generosity.
Tenderness of heart (extreme).
Sensuality.
Obstinacy (extreme).
Irritability.
Infidelity.

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[1] See also Modern Painters, vol. v. pp. 365–367, and Lectures on Architecture and Painting, pp. 181–188, where the character of Turner is further explained, and various anecdotes given in special illustration of his truth, generosity, and kindness of heart.

And be sure that he knew his own power, and felt himself utterly alone in the world from its not being understood. Don't try to mask the dark side. . . .

Yours most truly,

J. RUSKIN.

[See the preface to the first edition of the "Life of Turner;" that to the second contains the following estimate of Mr. Thornbury's book:[1] "Lucerne, Dec. 2, 1861.—I have just received and am reading your book with deep interest. I am much gratified by the view you have taken and give of Turner. It is quite what I hoped. What beautiful things you have discovered about him! Thank you for your courteous and far too flattering references to me."]

V.—PICTURES AND ARTISTS.

[From the "Catalogue of the Exhibition of Outlines by the late John Leech, at the Gallery, 9 Conduit Street, Regent Street." 1872.[2]]

JOHN LEECH'S OUTLINES.

I AM honored by the request of the sister of John Leech that I should give some account of the drawings of her brother, which remain in her possession; and I am able to fulfil her request without departing from the rule which has always bound me, not to allow any private interest to weigh with me in speaking of matters which concern the public. It is merely and simply a matter of public concern that the value of these drawings should be known and measures taken for their acquisition, or, at least, for obtaining a characteristic selection from them, as a National property. It cannot be necessary for me, or for any one, now to praise the work of

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[1] The book was also referred to in Modern Painters, vol. v. p. 365, where Mr. Ruskin speaks of this Life of Turner, then still unpublished, as being written "by a biographer, who will, I believe, spare no pains in collecting the few scattered records which exist of a career so uneventful and secluded."

[2] Nearly eight years after Leech's death on October 29, 1864.

John Leech. Admittedly it contains the finest definition and natural history of the classes of our society, the kindest and subtlest analysis of its foibles, the tenderest flattery of its pretty and well-bred ways, with which the modesty of subservient genius ever amused or immortalized careless masters. But it is not generally known how much more valuable, as art, the first sketches for the woodcuts were than the finished drawings, even before those drawings sustained any loss in engraving.

John Leech was an absolute master of the elements of character,—but not by any means of those of *chiaroscuro*,—and the admirableness of his work diminished as it became elaborate. The first few lines in which he sets down his purpose are invariably of all drawing that I know the most wonderful in their accurate felicity and prosperous haste. It is true that the best possible drawing, whether slight or elaborate, is never hurried. Holbein or Titian, if they lay only a couple of lines, yet lay them quietly, and leave them entirely right. But it needs a certain sternness of temper to do this.

Most, in the prettiest sense of the word, *gentle* artists indulge themselves in the ease, and even trust to the felicity of rapid—and even in a measure inconsiderate—work in sketching, so that the beauty of a sketch is understood to be consistent with what is partly unintentional.

There is, however, one condition of extreme and exquisite skill in which haste may become unerring. It cannot be obtained in completely finished work ; but the hands of Gainsborough, Reynolds, or Tintoret often nearly approach completion at full speed, and the pencil sketches of Turner are expressive almost in the direct ratio of their rapidity.

But of all rapid and condensed realization ever accomplished by the pencil, John Leech's is the most dainty, and the least fallible, in the subjects of which he was cognizant. Not merely right in the traits which he seizes, but refined in the sacrifice of what he refuses.

The drawing becomes slight through fastidiousness not indolence, and the finest discretion has left its touches rare.

In flexibility and lightness of pencilling, nothing but the best outlines of Italian masters with the silver point can be

compared to them. That Leech sketched English squires instead of saints, and their daughters instead of martyrs, does not in the least affect the question respecting skill of pencilling; and I repeat deliberately that nothing but the best work of sixteenth century Italy with the silver point exists in art, which in rapid refinement these playful English drawings do not excel. There are too many of them (fortunately) to be rightly exemplary—I want to see the collection divided, dated carefully, and selected portions placed in good light, in a quite permanent arrangement in each of our great towns in connection with their drawing schools.

I will not indeed have any in Oxford while I am there, because I am afraid that my pupils should think too lightly of their drawing as compared with their other studies, and I doubt their studying anything else but John Leech if they had him to study. But in our servile schools of mechanical drawing, to see what drawing was indeed, which could represent something better than machines, and could not be mimicked by any machinery, would put more life into them than any other teaching I can conceive.

It is, therefore, with the greatest pleasure that I accept the honor of having my name placed on the committee for obtaining funds for the purchase of these drawings; and I trust that the respect of the English public for the gentle character of the master, and their gratitude for the amusement with which he has brightened so many of their days, will be expressed in the only way in which expression is yet possible by due care and wise use of the precious possessions he has left to them.

(Signed) J. Ruskin.

[From "The Architect," December 27, 1873.]

ERNEST GEORGE'S ETCHINGS.

To the Editor of "The Architect."

My dear Sir: I am entirely glad you had permission to publish some of Mr. Ernest George's etchings;[1] they are the

[1] The number of the Architect in which this letter was printed contained two sketches from Mr. George's Etchings on the Mosel—those,

most precious pieces of work I have seen for many a day, though they are still, like nearly everything the English do best in art, faultful in matters which might have been easily conquered, and not a little wasteful, sometimes of means and time ; I should be glad, therefore, of space enough in your columns to state, with reference to these sketches, some of the principles of etching which I had not time to define in the lectures on engraving I gave this year, at Oxford,[1] and which are too often forgotten even by our best draughtsmen.

I call Mr. George's work precious, chiefly because it indicates an intense perception of points of character in architecture, and a sincere enjoyment of them for their own sake. His drawings are not accumulative of material for future use ; still less are they vain exhibitions of his own skill. He draws the scene in all its true relations, because it delights him, and he perceives what is permanently and altogether characteristic in it. As opposed to such frank and joyful work, most modern architectural drawings are mere diagram or exercise.

I call them precious, in the second place, because they show very great powers of true composition. All their subjects are made delightful more by skill of arrangement than by any dexterities of execution ; and this faculty is very rare amongst landscape painters and architects, because nearly every man who has any glimmering of it naturally takes to figure painting—not that the ambition to paint figures is any sign of the faculty, but that, when people have the faculty, they nearly always have also the ambition. And, indeed, this is quite

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viz., of the Elector's Palace, Coblentz, and of the interior of Metz Cathedral. The intention of the Architect to reproduce these etchings had apparently been previously communicated to Mr. Ruskin, who wrote the present letter for the issue in which the etchings were to be given. Mr. George has since published other works of the same kind—*e.g.*, Etchings in Belgium, Etchings on the Loire (see Mr. Ruskin's advice to him at the end of this letter, p. 116).

[1] The reference must, I think, be to Ariadne Florentina: Six Lectures on Wood and Metal Engraving given before the University of Oxford, Michaelmas Term, 1872, and afterwards published, 1873–6. The lectures given in the year 1873 were upon Tuscan Art, now published in Val d'Arno.

right, if they would not forsake their architecture afterwards, but apply their power of figure design, when gained, to the decoration of their buildings.

To return to Mr. George's work. It is precious, lastly, in its fine sense of serene light and shade, as opposed to the coruscations and horrors of modern attempts in that direction. But it is a pity—and this is the first grand principle of etching which I feel it necessary to affirm—when the instinct of chiaroscuro leads the artist to spend time in producing texture on his plate which cannot be ultimately perfect, however labored. All the common raptures concerning blots, burr, delicate biting, and the other tricks of the etching trade, merely indicate imperfect feeling for shadow.

The proper instrument of chiaroscuro is the brush; a wash of sepia, rightly managed, will do more in ten minutes than Rembrandt himself could do in ten days of the most ingenious scratching, or blurt out by the most happy mixtures of art and accident.* As soon as Mr. George has learned what true light and shade is (and a few careful studies with brush or chalk would enable him to do so), he will not labor his etched subjects in vain. The virtue of an etching, in this respect, is to express perfectly harmonious sense of light and shade, but not to realize it. All fine etchings are done with few lines.

Secondly—and this is a still more important general principle (I must let myself fall into dictatorial terms for brevity's sake)—Let your few lines be sternly clear, however delicate, or however dark. All burr and botch is child's play, and a true draughtsman must never be at the mercy of his copper and ink. Drive your line well and fairly home; don't scrawl or zigzag; know where your hand is going, and what it is doing, to a hairbreadth; then bite clear and clean, and let the last impression be as good as the first. When it begins to fail break your plate.

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* The value of Rembrandt's etchings is always in the inverse ratio of the labor bestowed on them after his first thoughts have been decisively expressed; and even the best of his chiaroscuros (the spotted shell, for instance) are mere child's play compared to the disciplined light and shade of Italian masters.

Third general principle.

Don't depend much on various biting. For a true master, and a great purpose, even one biting is enough. By no flux or dilution of acid can you ever etch a curl of hair or a cloud; and if you think you can etch the gradations of coarser things, it is only because you have never seen them. Try, at your leisure, to etch a teacup or a tallow candle, of their real size; see what you can make of the gradations of those familiar articles; if you succeed to your mind, you may try something more difficult afterwards.

Lastly. For all definite shades of architectural detail, use pencil or charcoal, or the brush, never the pen point. You can draw a leaf surface rightly in a minute or two with these —with the pen point, never, to all eternity. And on you knowing what the surface of a form is depends your entire power of recognizing good work. The difference between thirteenth century work, wholly beautiful, and a cheap imitation of it, wholly damnable, lies in gradation of surface as subtle as those of a rose-leaf, and which are, to modern sculpture, what singing is to a steam-whistle.

For the rest, the limitation of etched work to few lines enables the sketcher to multiply his subjects, and make his time infinitely more useful to himself and others. I would most humbly solicit, in conclusion, such advantageous use of his gifts from Mr. George. He might etch a little summer tour for us every year, and give permanent and exquisite record of a score of scenes, rich in historical interest, with no more pains than he has spent on one or two of these plates in drawing the dark sides of a wall. Yours faithfully,

JOHN RUSKIN.

[From "The Times," January 20, 1876.]

THE FREDERICK WALKER EXHIBITION.

DEAR MR. MARKS:[1] You ask me to say what I feel of Frederick Walker's work, now seen in some collective mass, as far

[1] This letter was written to Mr. H. Stacy Marks, A.R.A., in answer to a request that Mr. Ruskin would in some way record his impression of

as anything can be seen in black-veiled London. You have long known my admiration of his genius, my delight in many passages of his art. These, while he lived, were all I cared to express. If you will have me speak of him now, I will speak the whole truth of what I feel—namely, that every soul in London interested in art ought to go to see that Exhibition, and, amid all the beauty and the sadness of it, very diligently to try and examine themselves as to the share they have had, in their own busy modern life, in arresting the power of this man at the point where it stayed. Very chief share they have had, assuredly. But he himself, in the liberal and radical temper of modern youth, has had his own part in casting down his strength, following wantonly or obstinately his own fancies wherever they led him. For instance, it being Nature's opinion that sky should usually be blue, and it being Mr. Walker's opinion that it should be the color of buff plaster, he resolutely makes it so, for his own isolated satisfaction, partly in affectation also, buff skies being considered by the public more sentimental than blue ones. Again, the laws of all good painting have been long ago determined by absolute masters, whose work cannot be bettered nor departed from—Titian having determined forever what oil-painting is, Angelico what what tempera-painting is, Perugino what fresco-painting is, two hundred years of noble miniature-painting what minutest work on ivory is, and, in modern times, a score of entirely skilful and disciplined draughtsmen what pure water-color and pure body-color painting on paper are (Turner's Yorkshire drawing of Hornby Castle, now at Kensington, and John Lewis's "Encampment under Sinai,"[1] being namable at once as unsurpassable standards), here is Mr. Walker refusing to learn anything from any of those schools or masters, but in-

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the Frederick Walker Exhibition, then open to the public. Frederick Walker died in June, 1875, at the early age of thirty-five, only four years after having been elected an Associate of the Royal Academy.

[1] The Hornby Castle was executed, together with the rest of the "great Yorksnire series," for Whitaker's History of Richmondshire (Longman, 1823).—The picture of John Lewis here alluded to is described in Mr. Ruskin's Academy Notes, 1856, No. II., p. 37.

venting a semi-miniature, quarter fresco, quarter wash manner of his own—exquisitely clever, and reaching, under such clever management, delightfullest results here and there, but which betrays his genius into perpetual experiment instead of achievement, and his life into woful vacillation between the good, old, quiet room of the Water-Color Society, and your labyrinthine magnificence at Burlington House.

Lastly, and in worst error, the libraries of England being full of true and noble books—her annals of true and noble history, and her traditions of beautiful and noble—in these scientific times I must say, I suppose, "mythology"—not religion—from all these elements of mental education and subjects of serviceable art, he turns recklessly away to enrich the advertisements of the circulating library, to sketch whatever pleases his fancy, barefooted, or in dainty boots, of modern beggary and fashion, and enforce, with laboriously symbolical pathos, his adherence to Justice Shallow's sublime theology that "all shall die."

That theology has indeed been preached by stronger men, again and again, from Horace's days to our own, but never to so little purpose. "Let us eat and drink, for to-morrow we die," said wisely in his way, the Latin farmer: ate his beans and bacon in comfort, had his suppers of the gods on the fair earth, with his servants jesting round the table, and left eternal monuments of earthly wisdom and of cricket-song. "Let us labor and be just, for to-morrow we die, and after death the Judgment," said Holbein and Durer, and left eternal monuments of upright human toil and honorable gloom of godly fear. "Let us rejoice and be exceeding glad, for to-morrow we die, and shall be with God," said Angelico and Giotto, and left eternal monuments of divinely-blazoned heraldry of Heaven. "Let us smoke pipes, make money, read bad novels, walk in bad air, and say sentimentally how sick we are in the afternoon, for to-morrow we die, and shall be made ourselves clay pipes," says the modern world, and drags this poor bright painter down into the abyss with it, vainly clutching at a handful or two of scent and flowers in the May gardens.

Under which sorrowful terms, being told also by your grand Academicians that he should paint the nude, and, accordingly, wasting a year or two of his life in trying to paint schoolboys' backs and legs without their shirts or breeches, and with such other magazine material as he can pick up of sick gypsies, faded gentlewomen, pretty girls disguised as paupers, and red-roofed or gray remnants of old English villages and manor-house, last wrecks of the country's peace and honor, remaining yet visible among the black ravages of its ruin, he supplies the demands of his temporary public, scarcely patient, even now that he has gone, to pause beside his delicate tulips or under his sharp-leaved willows, and repent for the passing tints and fallen petals of the life that might have been so precious, and, perhaps, in better days, prolonged.

That is the main moral of the Exhibition. Of the beauty of the drawings, accepting them for what they aim at being, there is little need that I should add anything to what has been already said rightly by the chief organs of the London Press. Nothing can go beyond them in subtlety of exhibited touch (to be distinguished, however, observe always from the serene completion of master's work, disdaining the applause to be gained by its manifestation;) their harmonies of amber-color and purple are full of exquisite beauty in their chosen key; their composition always graceful, often admirable, and the sympathy they express with all conditions of human life most kind and true; not without power of rendering character which would have been more recognized in an inferior artist, because it would have been less restrained by the love of beauty.

I might, perhaps, in my days of youth and good fortune, have written what the public would have called "eloquent passages" on the subjects of the Almshouse and the Old Gate;[1] being now myself old and decrepit (besides being

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[1] The following are the pictures, as catalogued, mentioned here:

1. The Almshouse—No. 52—called the House of Refuge. Oil on canvas. A garden and terrace in quadrangle of almshouses; on left an old

much bothered with beggars, and in perpetual feud with parish officers), and having seen every building I cared for in the world ruined, I pass these two pictures somewhat hastily by, and try to enjoy myself a little in the cottage gardens. Only one of them, however,—No. 71,—has right sunshine in it, and that is a sort of walled paddock where I begin directly to feel uncomfortable about the lamb, lest, perchance, some front shop in the cottages belong to a butcher. If only it and I could get away to a bit of thymy hill-side, we should be so much happier, leaving the luminous—perhaps too ideally luminous—child to adorn the pathetic paddock. I am too shy to speak to either of those two beautiful ladies among the lilies (37, 67), and take refuge among the shy children before the "Chaplain's Daughter" (20)—delightfullest, it seems to me, of the minor designs, and a piece of most true and wise satire. The sketches of the "Daughter of Heth" go far to tempt me to read the novel; and ashamed of this weakness, I retreat resolutely to the side of the exemplary young girl knitting in the "Old Farm Garden" (33), and would instantly pick up

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woman and girl; on right a mower cutting grass. Exhibited R. A. 1872.

2. The Old Gate—No. 48—oil on canvas. Lady in black and servant with basket coming through the gate of old mansion; four children at play at foot of steps; two villagers and dog in foreground. Exhibited R. A. 1869.

3. The Cottage Gardens—No. 71, The Spring of Life. Water-color. Lady in a garden with two children and a lamb; a cherry tree in blossom. Exhibited at the Water-Color Society, Winter 1866–7. See also Nos. 14 and 21.

4. Ladies and Lilies—No. 37, A Lady in a Garden, Perthshire. Water-color. A lady seated on a knoll on which is a sun-dial; greyhound on left; background, old manor-house. No. 67, Lilies. Water-color. Lady in a garden watering flowers, chiefly lilies. Exhibited at the Water-Color Society, Winter, 1869–70 and 1868–9 respectively.

5. The Chaplain's Daughter—No. 20, subject from Miss Thackeray's Jack the Giant-killer. Exhibited at the Water-Color Society, Summer 1868.

6. Daughter of Heth, by W. Black. No. 87. Do ye no ken this is the Sabbath? Young lady at piano; servant enters hurriedly. (Study in black and white, executed in 1872.)—[See vol. i. p. 41. "'Preserve

her ball of worsted for her, but that I wouldn't for the world disappoint the cat. No drawing in the room is more delicately completed than this unpretending subject, and the flower-painting in it, for instantaneous grace of creative touch, cannot be rivalled; it is worth all the Dutch flower-pieces in the world.

Much instructed, and more humiliated, by passage after passage of its rapidly-grouped color, I get finally away into the comfortable corner beside the salmon-fishers and the mushrooms; and the last-named drawing, despise me who may, keeps me till I've no more time to stay, for it entirely beats my dear old William Hunt in the simplicity of its execution, and rivals him in the subtlest truth.

I say nothing of the "Fishmonger's Stalls" (952), though there are qualities of the same kind in these also, for they somewhat provoke me by their waste of time—the labor spent on one of them would have painted twenty instructive studies of fish of their real size. And it is well for artists in general to observe that when they do condescend to paint still life carefully—whether fruit, fungi, or fish—it must at least be of

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us a', lassie, do ye ken what ye're doing? Do ye no ken that this is the Sabbath, and that you're in a respectable house?' The girl turned round with more wonder than alarm in her face: 'Is it not right to play music on Sunday?' "]—No. 131. Three more studies for the same novel.)

7. The Old Farm Garden—No. 33—Water-color. A girl, with cat on lawn, knitting; garden path bordered by tulips; farm buildings in background. Painted in 1871.

8. Salmon-fishers—No. 47—Fisherman and Boy—Water-color. Keeper and boy on bank of river. Glen Spean. Salmon in foreground. Exhibited at the Water-Color Society, Summer 1867.

9. Mushrooms and Fungi—No. 41—Water-color. Painted in 1873.

10. Fishmonger's Stalls—Nos. 9 and 62 (not 952)—viz., No. 9, A Fishmonger's Shop. Water-color. Painted in 1873; and No. 62, also A Fishmonger's Shop. Water-color. Fishmongers selling fish; lady and boy in costumes of about 1800. Exhibited at Water-Color Society, Winter 1872-3. (The Tobias of Perugino has been already alluded to, p. 54, note).

11. No. 68. The Ferry. Water-color. Sight size, $11\frac{3}{4} \times 18$ in. A ferry boat, in which are two figures, a boatman and a lady, approaching a landing-place; on the bank figures of villagers, and children feeding swans. Exhibited at Water-Color Society, Winter 1870-71.

the real size. The portrait of a man or woman is only justifiably made small that it may be portable, and nobody wants to carry about the minature of a cod; and if the reader will waste five minutes of his season in London in the National Gallery, he may see in the hand of Perugino's Tobias a fish worth all these on the boards together.

Some blame of the same kind attaches to the marvellous drawing No. 68. It is all very well for a young artist to show how much work he can put into an inch, but very painful for an old gentleman of fifty-seven to have to make out all the groups through a magnifying-glass. I could say something malicious about the boat, in consequence of the effect of this exertion on my temper, but will not, and leave with unqualified praise the remainder of the lesser drawings to the attention which each will variously reward.

Nor, in what I have already, it may be thought, too bluntly said, ought the friends of the noble artist to feel that I am unkind. It is because I know his real power more deeply than any of the admirers who gave him indiscriminate applause, that I think it right distinctly to mark the causes which prevented his reaching heights they did not conceive, and ended by placing one more tablet in the street of tombs, which the passionate folly and uninstructed confusion of modern English society prolong into dark perspective above the graves of its youth.

I am, dear Marks, always very faithfully yours,

J. Ruskin.

VI.—ARCHITECTURE.

[From "The Oxford Museum," by H. W. Acland and J. Ruskin. 1859. pp. 44–56.]

GOTHIC ARCHITECTURE AND THE OXFORD MUSEUM.[1]

Dear Acland: I have been very anxious, since I last heard from you, respecting the progress of the works at the Museum, as I thought I could trace in your expressions some doubt of an entirely satisfactory issue.

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[1] In 1858 the Oxford Museum was in course of building, its architects being Sir Thomas Deane and Mr. Woodward, and its style modern

Entirely satisfactory very few issues are, or can be; and when the enterprise, as in this instance, involves the development of many new and progressive principles, we must always be prepared for a due measure of disappointment,—due partly to human weakness, and partly to what the ancients would have called fate,—and we may, perhaps, most wisely call the law of trial, which forbids any great good being usually accomplished without various compensations and deductions, probably not a little humiliating.

Perhaps in writing to you what seems to me to be the bearing of matters respecting your Museum, I may be answering a few of the doubts of others, as well as fears of your own.

I am quite sure that when you first used your influence to advocate the claims of a Gothic design, you did so under the conviction, shared by all the seriously-purposed defenders of the Gothic style, that the essence and power of Gothic, properly so called, lay in its adaptability to all need; in that perfect and unlimited flexibility which would enable the architect to provide all that was required, in the simplest and most

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Gothic, whilst amongst those chiefly interested in it were Dr. Acland (the Regius Professor of Medicine) and Mr. Ruskin. The present letter, written in June, 1858, was read by Dr. Acland at a lecture given by him in that summer "to the members of the Architectural Societies that met in Oxford" at that time. I am permitted to reprint the following passage from Dr. Acland's preface to the printed lecture, as well as one or two passages from the lecture itself (see below, pp. 128 and 129): "Many have yet to learn the apparently simple truth, that to an Artist his Art is his means of probation in this life; and that, whatever it may have of frivolity to us, to him it is as the two or the five talents, to be accounted for hereafter. I might say much on this point, for the full scope of the word Art seems by some to be even now unrecognized Before the period of printing, Art was the largest mode of permanently recording human thought; it was spoken in every epoch, in all countries, and delivered in almost every material. In buildings, on medals and coins, in porcelain and earthenware, on wood, ivory, parchment, paper and canvas, the graver or the pencil has recorded the ideas of every form of society, of every variety of race and of every character. What wonder that the Artist is jealous of his craft, and proud of his brotherhood?"—See The Oxford Museum, p. 4. The reader is also referred to Sesame and Lilies, 1871 ed., §§ 103–4.

convenient way; and to give you the best offices, the best lecture-rooms, laboratories, and museums, which could be provided with the sum of money at his disposal.

So far as the architect has failed in doing this; so far as you find yourself, with the other professors, in anywise inconvenienced by forms of architecture; so far as pillars or piers come in your way, when you have to point, or vaults in the way of your voice, when you have to speak, or mullions in the way of your light, when you want to see—just so far the architect has failed in expressing his own principles, or those of pure Gothic art. I do not suppose that such failure has taken place to any considerable extent; but so far as it has taken place, it cannot in justice be laid to the score of the style, since precedent has shown sufficiently, that very uncomfortable and useless rooms may be provided in all other styles as well as in Gothic; and I think if, in a building arranged for many objects of various kinds, at a time when the practice of architecture has been somewhat confused by the inventions of modern science, and is hardly yet organized completely with respect to the new means at his disposal; if, under such circumstances, and with somewhat limited funds, you have yet obtained a building in all main points properly fulfilling its requirements, you have, I think, as much as could be hoped from the adoption of any style whatsoever.

But I am much more anxious about the decoration of the building; for I fear that it will be hurried in completion, and that, partly in haste and partly in mistimed economy, a great opportunity may be lost of advancing the best interest of architectural, and in that, of all other arts. For the principles of Gothic decoration, in themselves as simple and beautiful as those of Gothic construction, are far less understood, as yet, by the English public, and it is little likely that any effective measures can be taken to carry them out. You know as well as I, what those principles are; yet it may be convenient to you that I should here state them briefly as I accept them myself, and have reason to suppose they are accepted by the principal promoters of the Gothic revival.

I. The first principle of Gothic decoration is that a given

quantity of good art will be more generally useful when exhibited on a large scale, and forming part of a connected system, than when it is small and separated. That is to say, a piece of sculpture or painting, of a certain allowed merit, will be more useful when seen on the front of a building, or at the end of a room, and therefore by many persons, than if it be so small as to be only capable of being seen by one or two at a time ; and it will be more useful when so combined with other work as to produce that kind of impression usually termed "sublime,"—as it is felt on looking at any great series of fixed paintings, or at the front of a cathedral,—than if it be so separated as to excite only a special wonder or admiration, such as we feel for a jewel in a cabinet.

The paintings by Meissonier in the French Exhibition of this year were bought, I believe, before the Exhibition opened, for 250 guineas each. They each represented one figure, about six inches high—one, a student reading ; the other, a courtier standing in a dress-coat. Neither of these paintings conveyed any information, or produced any emotion whatever, except that of surprise at their minute and dextrous execution. They will be placed by their possessors on the walls of small private apartments, where they will probably, once or twice a week, form the subject of five minutes' conversation while people drink their coffee after dinner. The sum expended on these toys would have been amply sufficient to cover a large building with noble frescoes, appealing to every passer-by, and representing a large portion of the history of any given period. But the general tendency of the European patrons of art is to grudge all sums spent in a way thus calculated to confer benefit on the public, and to grudge none for minute treasures of which the principal advantage is that a lock and key can always render them invisible.

I have no hesitation in saying that an acquisitive selfishness, rejoicing somewhat even in the sensation of possessing what can NOT be seen by others, is at the root of this art-patronage. It is, of course, coupled with a sense of securer and more convenient investment in what may be easily protected and easily carried from place to place, than in large and immovable

works; and also with a vulgar delight in the minute curiosities of productive art, rather than in the exercise of inventive genius, or the expression of great facts or emotions.

The first aim of the Gothic Revivalists is to counteract, as far as possible, this feeling on all its three grounds. We desire (A) to make art large and publicly beneficial, instead of small and privately engrossed or secluded; (B) to make art fixed instead of portable, associating it with local character and historical memory; (C) to make art expressive instead of curious, valuable for its suggestions and teachings, more than for the mode of its manufacture.

II. The second great principle of the Gothic Revivalists is that all art employed in decoration should be informative, conveying truthful statements about natural facts, if it conveys *any* statement. It may sometimes merely compose its decorations of mosiacs, checkers, bosses, or other meaningless ornaments: but if it represents organic form (and in all important places it *will* represent it), it will give that form truthfully, with as much resemblance to nature as the necessary treatment of the piece of ornament in question will admit of.

This principle is more disputed than the first among the Gothic Revivalists themselves. I, however, hold it simply and entirely, believing that ornamentation is always *cæteris paribus*, most valuable and beautiful when it is founded on the most extended knowledge of natural forms, and conveys continually such knowledge to the spectator.[1]

III. The third great principle of the Gothic Revival is that all architectural ornamentation should be executed by the men who design it, and should be of various degrees of excellence, admitting, and therefore exciting, the intelligent cooperation of various classes of workmen; and that a great public edifice should be, in sculpture and painting, somewhat the same as a great chorus of music, in which, while, perhaps, there may be only one or two voices perfectly trained, and of perfect sweetness (the rest being in various degrees weaker and less cultivated), yet all being ruled in harmony, and each

[1] See next letter, pp. 128 *seqq.*

sustaining a part consistent with its strength, the body of sound is sublime, in spite of individual weaknesses.

The Museum at Oxford was, I know, intended by its designer to exhibit in its decoration the working of these three principles; but in the very fact of its doing so, it becomes exposed to chances of occasional failure, or even to serious discomfitures, such as would not at all have attended the adoption of an established mode of modern work. It is easy to carve capitals on models known for four thousand years, and impossible to fail in the application of mechanical methods and formalized rules. But it is not possible to appeal vigorously to new canons of judgment without the chance of giving offence; nor to summon into service the various phases of human temper and intelligence, without occasionally finding the tempers rough and the intelligence feeble. The Oxford Museum is, I believe, the first building in this country which has had its ornamentation, in any telling parts, trusted to the invention of the workman; the result is highly satisfactory, the projecting windows of the staircases being as beautiful in effect as anything I know in civil Gothic: but far more may be accomplished for the building if the completion of its carving be not hastened; many men of high artistic power might be brought to take an interest in it, and various lessons and suggestions given to the workmen which would materially advantage the final decoration of leading features. No very great Gothic building, so far as I know, was ever yet completed without some of this wise deliberation and fruitful patience.

I was in hopes from the beginning that the sculpture might have been rendered typically illustrative of the English Flora: how far this idea has been as yet carried out I do not know; but I know that it cannot be properly carried out without a careful examination of the available character of the principal genera, such as architects have not hitherto undertaken. The proposal which I heard advanced the other day, of adding a bold entrance-porch to the façade, appeared to me every way full of advantage, the blankness of the façade having been, to my mind, from the first, a serious fault in the design. If a

subscription were opened for the purpose of erecting one, I should think there were few persons interested in modern art who would not be glad to join in forwarding such an object.

I think I could answer for some portions of the design being superintended by the best of our modern sculptors and painters; and I believe that, if so superintended, the porch might and would become the crowning beauty of the building, and make all the difference between its being only a satisfactory and meritorious work, or a most lovely and impressive one.

The interior decoration is a matter of much greater difficulty; perhaps you will allow me to defer the few words I have to say about it till I have time for another letter: which, however, I hope to find speedily.

Believe me, my dear Acland, ever affectionately yours,

J. Ruskin.[1]

[From "The Oxford Museum," pp. 60–90.]

GOTHIC ARCHITECTURE AND THE OXFORD MUSEUM.

January 20, 1859.

My dear Acland: I was not able to write, as I had hoped, from Switzerland, for I found it impossible to lay down any principles respecting the decoration of the Museum which did

[1] After reading this letter to his audience, Dr. Acland thus continued: "The principles thus clearly enumerated by Mr. Ruskin are, in the main, those that animate the earnest student of Gothic. It is not for me especially to advocate Gothic Art, but only to urge, that if called into life, it should be in conformity to its own proper laws of vitality. If week after week, in my youth, with fresh senses and a docile spirit, I have drank in each golden glow that is poured by a Mediterranean sun from over the blue Ægean upon the Athenian Parthenon,—if, day by day, sitting on Mars' Hill, I have watched each purple shadow, as the temple darkened in majesty against the evening sky,—if so, it has been to teach me, as the alphabet of all Art, to love all truth and to hate all falsehood, and to kiss the hand of every Master who has brought down, under whatever circumstance, and in whatever age, one spark of true light from the Beauty and the subtle Law, which stamps the meanest work of the Ever-living, Ever-working Artist."—The Oxford Museum, pp. 56–7.

not in one way or other involve disputed points, too many, and too subtle, to be discussed in a letter. Nor do I feel the difficulty less in writing to you now, so far as regards the question occurring in our late conversations, respecting the best mode of completing these interior decorations. Yet I must write, if only to ask that I may be in some way associated with you in what you are now doing to bring the Museum more definitely before the public mind—that I may be associated at least in the expression of my deep sense of the noble purpose of the building—of the noble sincerity of effort in its architect—of the endless good which the teachings to which it will be devoted must, in their ultimate issue, accomplish for mankind. How vast the range of that issue, you have shown in the lecture which I have just read, in which you have so admirably traced the chain of the physical sciences as it encompasses the great concords of this visible universe.[1]

[1] See The Oxford Museum, pp. 17–23. The following is a portion of the passage alluded to: "Without the Geologist on one side, and the Anatomist and Physiologist on the other, Zoology is not worthy of its name. The student of life, bearing in mind the more general laws which in the several departments above named he will have sought to appreciate, will find in the collections of Zoology, combined with the Geological specimens and the dissections of the Anatomist, a boundless field of interest and of inquiry, to which almost every other science lends its aid: from each science he borrows a special light to guide him through the ranges of extinct and existing animal forms, from the lowest up to the highest types, which, last and most perfect, but preshadowed in previous ages, is seen in Man. By the aid of physiological illustrations he begins to understand how hard to unravel are the complex mechanisms and prescient intentions of the Maker of all; and he slowly learns to appreciate what exquisite care is needed for discovering the real action of even an apparently comprehended machine. And so at last, almost bewildered, but not cast down, he attempts to scrutinize in the rooms devoted to Medicine, the various injuries which man is doomed to undergo in his progress towards death; he begins to revere the beneficent contrivances which shine forth in the midst of suffering and disease, and to veil his face before the mysterious alterations of structure, to which there seem attached pain, with scarce relief, and a steady advance, without a check, to death. He will look, and as he looks, will cherish hope, not unmixed with prayer, that the great Art of Healing may by all these things advance and that by the progress of

But how deep the workings of these new springs of knowledge are to be, and how great our need of them, and how far the brightness and the beneficence of them are to reach among all the best interests of men—perhaps none of us can yet conceive, far less know or say. For, much as I reverence physical science as a means of mental education (and you know how I have contended for it, as such, now these twenty years, from the sunny afternoon of spring when Ehrenberg and you and I went hunting for infusoria in Christchurch meadow streams, to the hour when the prize offered by Sir Walter Trevelyan and yourself for the best essay on the Fauna of that meadow, marked the opening of a new era in English education [1])—much, I say, as I reverence physical science in this function, I reverence it, at this moment, more as the source of utmost human practical power, and the means by which the far-distant races of the world, who now sit in darkness and the shadow of death, are to be reached and regenerated. At home or far away—the call is equally instant—here, for want of more extended physical science, there is plague in our streets, famine in our fields; the pest strikes root and fruit over a hemisphere of the earth, we know not why; the voices of our children fade away into silence of venomous death, we know not why; the population of this most civilized country resists every effort to lead it into purity of habit and habitation—to give it genuineness of nourish-

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profounder science, by the spread among the people of the resultant practical knowledge, by stricter obedience to physiological laws, by a consequent more self-denying spirit, some disorders may at a future day be cured, which cannot be prevented, and some, perhaps, prevented, which never can be cured."

[1] Christian Gottfried Ehrenberg, the naturalist and author of many works, of which those on infusoria may be especially noted here. He was born in 1795, and in 1842 was elected Principal Secretary to the Berlin Academy of Science, which post he held till his death in 1876. The late Sir Walter Calverley Trevelyan, Bart., will also be remembered in connection with the study of natural science, as well as for his efforts in philanthropy. He died in March, 1879. I have been unable to find any further information as to the prize mentioned by Mr. Ruskin, or as to the essay which obtained it.

ment, and wholesomeness of air, as a new interference with its liberty ; and insists vociferously on its right to helpless death. All this is terrible ; but it is more terrible yet that dim, phosphorescent, frightful superstitions still hold their own over two-thirds of the inhabited globe, and that all the phenomena of nature which were intended by the Creator to enforce His eternal laws of love and judgment, and which, rightly understood, enforce them more strongly by their patient beneficence, and their salutary destructiveness, than the miraculous dew on Gideon's fleece, or the restrained lightnings of Horeb—that all these legends of God's daily dealing with His creatures remain unread, or are read backwards, into blind, hundred-armed horror of idol cosmogony.

How strange it seems that physical science should ever have been thought adverse to religion! The pride of physical science is, indeed, adverse, like every other pride, both to religion and truth ; but sincerity of science, so far from being hostile, is the path-maker among the mountains for the feet of those who publish peace.

Now, therefore, and now only, it seems to me, the University has become complete in her function as a teacher of the youth of the nation to which every hour gives wider authority over distant lands ; and from which every rood of extended dominion demands new, various, and variously applicable knowledge of the laws which govern the constitution of the globe, and must finally regulate the industry, no less than discipline the intellect, of the human race. I can hardly turn my mind from these deep causes of exultation to the minor difficulties which beset or restrict your undertaking. The great work is accomplished ; the immediate impression made by it is of little importance ; and as for my own special subjects of thought or aim, though many of them are closely involved in what has been done, and some principles which I believe to be, in their way, of great importance, are awkwardly compromised in what has been imperfectly done—all these I am tempted to waive, or content to compromise when only I know that the building is in main points fit for its mighty work. Yet you will not think that it was matter of indifference to me

when I saw, as I went over Professor Brodie's [1] chemical laboratories the other day, how closely this success of adaptation was connected with the choice of the style. It was very touching and wonderful to me. Here was the architecture which I had learned to know and love in pensive ruins, deserted by the hopes and efforts of men, or in dismantled fortress-fragments recording only their cruelty—here was this very architecture lending itself, as if created only for these, to the foremost activities of human discovery, and the tenderest functions of human mercy. No other architecture, as I felt in an instant, could have thus adapted itself to a new and strange office. No fixed arrangements of frieze and pillar, nor accepted proportions of wall and roof, nor practised refinement of classical decoration, could have otherwise than absurdly and fantastically yielded its bed to the crucible, and its blast to the furnace ; but these old vaultings and strong buttresses—ready always to do service to man, whatever his bidding—to shake the waves of war back from his seats of rock, or prolonged through faint twilights of sanctuary, the sighs of his superstition—he had but to ask it of them, and they entered at once into the lowliest ministries of the arts of healing, and the sternest and clearest offices in the service of science.

And the longer I examined the Museum arrangements, the more I felt that it could be only some accidental delay in the recognition of this efficiency for its work which had caused any feeling adverse to its progress among the members of the University. The general idea about the Museum has perhaps been, hitherto, that it is a forced endeavor to bring decorative forms of architecture into uncongenial uses ; whereas, the real fact is, as far as I can discern it, that no other architecture would, under the required circumstances, have been *possible ;* and that any effort to introduce classical types of form into these laboratories and museums must have ended in ludicrous discomfiture. But the building has now reached a point of

[1] Mr. Brodie, who succeeded his father as Sir Benjamin Brodie in 1867, was appointed Professor of Chemistry at Oxford in 1855.

crisis, and it depends upon the treatment which its rooms now receive in completion, whether the facts of their propriety and utility be acknowledged by the public, or lost sight of in the distraction of their attention to matters wholly external.

So strongly I feel this, that, whatever means of decoration had been at your disposal, I should have been inclined to recommend an exceeding reserve in that matter. Perhaps I should even have desired such reserve on abstract grounds of feeling. The study of Natural History is one eminently addressed to the active energies of body and mind. Nothing is to be got out of it by dreaming, not always much by thinking —everything by seeking and seeing. It is work for the hills and fields,—work of foot and hand, knife and hammer,—so far as it is to be afterwards carried on in the house, the more active and workmanlike our proceedings the better, fresh air blowing in from the windows, and nothing interfering with the free space for our shelves and instruments on the walls. I am not sure that much interior imagery or color, or other exciting address to any of the observant faculties, would be desirable under such circumstances. You know best; but I should no more think of painting in bright colors beside you, while you were dissecting or analyzing, than of entertaining you by a concert of fifes and cymbals.

But farther: Do you suppose Gothic decoration is an easy thing, or that it is to be carried out with a certainty of success at the first trial, under new and difficult conditions? The system of the Gothic decorations took eight hundred years to mature, gathering its power by undivided inheritance of traditional method, and unbroken accession of systematic power; from its culminating point in the Sainte Chapelle, it faded through four hundred years of splendid decline; now for two centuries it has lain dead—and more than so—buried; and more than so, forgotten, as a dead man out of mind; do you expect to revive it out of those retorts and furnaces of yours, as the cloud-spirit of the Arabian sea rose from beneath the seals of Solomon? Perhaps I have been myself faultfully answerable for this too eager hope in your mind (as well as in that of others) by what I have urged so often respecting

the duty of bringing out the power of subordinate workmen in decorative design. But do you think I meant workmen trained (or untrained) in the way that ours have been until lately, and then cast loose on a sudden, into unassisted contentions with unknown elements of style? I meant the precise contrary of this; I meant workmen as we have yet to create them: men inheriting the instincts of their craft through many generations, rigidly trained in every mechanical art that bears on their materials, and familiarized from infancy with every condition of their beautiful and perfect treatment; informed and refined in manhood, by constant observation of all natural fact and form; then classed, according to their proved capacities, in ordered companies, in which every man shall know his part, and take it calmly and without effort or doubt,—indisputably well, unaccusably accomplished,—mailed and weaponed *cap-à-pie* for his place and function. Can you lay your hand on such men? or do you think that mere natural good-will and good-feeling can at once supply their place? Not so: and the more faithful and earnest the minds you have to deal with, the more careful you should be not to urge them towards fields of effort, in which, too early committed, they can only be put to unserviceable defeat.

Nor can you hope to accomplish by rule or system what cannot be done by individual taste. The laws of color are definable up to certain limits, but they are not yet defined. So far are they from definition, that the last, and, on the whole, best work on the subject (Sir Gardner Wilkinson's) declares the "color concords" of preceding authors to be discords, and *vice versâ*.[1]

Much, therefore, as I love color decoration when it is rightly given, and essential as it has been felt by the great architects of all periods to the completion of their work, I would not, in your place, endeavor to carry out such decoration at present, in any elaborate degree, in the interior of the Museum. Leave it for future thought; above all, try no

[1] Sir Gardner Wilkinson's book On Color and the Diffusion of Taste was published in 1858.

experiments. Let small drawings be made of the proposed arrangements of color in every room; have them altered on the paper till you feel they are right; then carry them out firmly and simply; but, observe, with as delicate execution as possible. Rough work is good in its place, three hundred feet above the eye, on a cathedral front, but not in the interior of rooms, devoted to studies in which everything depends upon accuracy of touch and keenness of sight.

With respect to this finishing, by the last touches bestowed on the *sculpture* of the building, I feel painfully the harmfulness of any ill-advised parsimony at this moment. For it may, perhaps, be alleged by the advocates of retrenchment, that so long as the building is fit for its uses (and your report is conclusive as to its being so), economy in treatment of external feature is perfectly allowable, and will in nowise diminish the serviceableness of the building in the great objects which its designs regarded. To a certain extent this is true. You have comfortable rooms, I hope sufficient apparatus; and it now depends much more on the professors than on the ornaments of the building, whether or not it is to become a bright or obscure centre of public instruction. Yet there are other points to be considered. As the building stands at present, there is a discouraging aspect of parsimony about it. One sees that the architect has done the utmost he could with the means at his disposal, and that just at the point of reaching what was right, he has been stopped for want of funds. This is visible in almost every stone of the edifice. It separates it with broad distinctiveness from all the other buildings in the University. It may be seen at once that our other public institutions, and all our colleges—though some of them simply designed—are yet *richly* built, never pinchingly. Pieces of princely costliness, every here and there, mingle among the simplicities or severities of the student's life. What practical need, for instance, have we at Christchurch of the beautiful fan-vaulting under which we ascend to dine? We might have as easily achieved the eminence of our banquets under a plain vault. What need have the readers in the Bodleian of the ribbed traceries which decorate its external walls? Yet, which

of those readers would not think that learning was insulted by their removal? And are there any of the students of Balliol devoid of gratitude for the kindly munificence of the man who gave them the beautiful sculptured brackets of their oriel window, when three massy projecting stones would have answered the purpose just as well? In these and also other regarded and pleasant portions of our colleges, we find always a wealthy and worthy completion of all appointed features, which I believe is not without strong, though untraced effect, on the minds of the younger scholars, giving them respect for the branches of learning which these buildings are intended to honor, and increasing, in a certain degree, that sense of the value of delicacy and accuracy which is the first condition of advance in those branches of learning themselves.

Your Museum, if you now bring it to hurried completion, will convey an impression directly the reverse of this. It will have the look of a place, not where a revered system of instruction is established, but where an unadvised experiment is being disadvantageously attempted. It is yet in your power to avoid this, and to make the edifice as noble in aspect as in function. Whatever chance there may be of failure in interior work, rich ornamentation may be given, without any chance of failure, to just that portion of the exterior which will give pleasure to every passer-by, and express the meaning of the building best to the eyes of strangers. There is, I repeat, no chance of serious failure in this external decoration, because your architect has at his command the aid of men, such as worked with the architects of past times. Not only has the art of Gothic sculpture in part remained, though that of Gothic color has been long lost, but the unselfish—and, I regret to say, in part self-sacrificing—zeal of two first-rate sculptors, Mr. Munro and Mr. Woolner, which has already given you a series of noble statues, is still at your disposal, to head and systematize the efforts of inferior workmen.

I do not know if you will attribute it to a higher estimate than yours of the genius of the O'Shea family,[1] or to a lower

[1] See note to p. 139.

estimate of what they have as yet accomplished, that I believe they will, as they proceed, produce much better ornamental sculpture than any at present completed in the Museum. It is also to be remembered that sculptors are able to work for us with a directness of meaning which none of our painters could bring to their task, even were they disposed to help us. A painter is scarcely excited to his strength, but by subjects full of circumstance, such as it would be difficult to suggest appropriately in the present building; but a sculptor has room enough for his full power in the portrait statues, which are necessarily the leading features of good Gothic decoration. Let me pray you, therefore, so far as you have influence with the delegacy, to entreat their favorable consideration of the project stated in Mr. Greswell's appeal—the enrichment of the doorway, and the completion of the sculpture of the West Front. There is a reason for desiring such a plan to be carried out, of wider reach than any bearing on the interest of the Museum itself. I believe that the elevation of all arts in England to their true dignity, depends principally on our recovering that unity of purpose in sculptors and architects, which characterized the designers of all great Christian buildings. Sculpture, separated from architecture, always degenerates into effeminacies and conceits; architecture, stripped of sculpture, is at best a convenient arrangement of dead walls; associated, they not only adorn, but reciprocally exalt each other, and give to all the arts of the country in which they thus exist, a correspondent tone of majesty.

But I would plead for the enrichment of this doorway by portrait sculpture, not so much even on any of these important grounds, as because it would be the first example in modern English architecture of the real value and right place of commemorative statues. We seem never to know at present where to put such statues. In the midst of the blighted trees of desolate squares, or at the crossings of confused streets, or balanced on the pinnacles of pillars, or riding across the tops of triumphal arches, or blocking up the aisles of cathedrals—in none of these positions, I think, does the portrait statue answer its purpose. It may be a question whether the erec-

tion of such statues is honorable to the erectors, but assuredly it is not honorable to the persons whom it pretends to commemorate; nor is it any wise matter of exultation to a man who has deserved well of his country to reflect that he may one day encumber a crossing, or disfigure a park gate. But there is no man of worth or heart who would not feel it a high and priceless reward that his statue should be placed where it might remind the youth of England of what had been exemplary in his life, or useful in his labors, and might be regarded with no empty reverence, no fruitless pensiveness, but with the emulative, eager, unstinted passionateness of honor, which youth pays to the dead leaders of the cause it loves, or discoverers of the light by which it lives. To be buried under weight of marble, or with splendor of ceremonial, is still no more than burial; but to be remembered daily, with profitable tenderness, by the activest intelligences of the nation we have served, and to have power granted even to the shadows of the poor features, sunk into dust, still to warn, to animate, to command, as the father's brow rules and exalts the toil of his children. This is not burial, but immortality.

There is, however, another kind of portraiture, already richly introduced in the works of the Museum; the portraiture, namely, of flowers and animals, respecting which I must ask you to let me say a few selfish, no less than congratulatory words—selfish, inasmuch as they bear on this visible exposition of a principle which it has long been one of my most earnest aims to maintain. We English call ourselves a practical people; but, nevertheless, there are some of our best and most general instincts which it takes us half-centuries to put into practice. Probably no educated Englishman or Englishwoman has ever, for the last forty years, visited Scotland, with leisure on their hands, without making a pilgrimage to Melrose; nor have they ever, I suppose, accomplished the pilgrimage without singing to themselves the burden of Scott's description of the Abbey. Nor in that description (may it not also be conjectured?) do they usually feel any couplets more deeply than the—

"Spreading herbs and flowerets bright
Glistened with the dew of night.
No herb nor floweret glistened there
But was carved in the cloister arches as fair."

And yet, though we are raising every year in England new examples of every kind of costly and variously intended buildings,—ecclesiastical, civil, and domestic,—none of us, through all that period, had boldness enough to put the pretty couplets into simple practice. We went on, even in the best Gothic work we attempted, clumsily copying the rudest ornaments of previous buildings; we never so much as dreamed of learning from the monks of Melrose, and seeking for help beneath the dew that sparkled on their "gude kail" garden.[1]

Your Museum at Oxford is literally the first building raised in England since the close of the fifteenth century, which has fearlessly put to new trial this old faith in nature, and in the genius of the unassisted workman, who gathered out of nature the materials he needed. I am entirely glad, therefore, that you have decided on engraving for publication one of O'Shea's capitals;[2] it will be a complete type of the whole work, in its inner meaning, and far better to show one of them in its completeness than to give any reduced sketch of the building. Nevertheless, beautiful as that capital is, and as all the rest of O'Shea's work is likely to be, it is not yet perfect Gothic sculpture; and it might give rise to dangerous error, if the admiration given to these carvings were unqualified.

I cannot, of course, enter in this letter into any discussion of the question, more and more vexed among us daily, respect-

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[1] "The monks of Melrose made good kail
On Friday, when they fasted."
The kail leaf is the one principally employed in the decorations of the abbey. (Original note to The Oxford Museum, p. 83.)

[2] This engraving, which formed the frontispiece of The Oxford Museum, will be found facing the title-page of the present volume, the original plate having proved in excellent condition. O'Shea was, together with others of his name and family, amongst the principal workmen on the building. The capital represents the following ferns: the common hart's-tongue (scolopendrium vulgare), the northern hard-fern (blechnum boreale), and the male fern (filix mas).

ing the due meaning and scope of conventionalism in treatment of natural form; but I may state briefly what, I trust, will be the conclusion to which all this "vexing" will at last lead our best architects.

The highest art in all kinds is that which conveys the most truth; and the best ornamentation possible would be the painting of interior walls with frescos by Titian, representing perfect Humanity in color; and the sculpture of exterior walls by Phidias, representing perfect Humanity in form. Titian and Phidias are precisely alike in their conception and treatment of nature—everlasting standards of the right.

Beneath ornamentation, such as men like these could bestow, falls in various rank, according to its subordination to vulgar uses or inferior places, what is commonly conceived as ornamental art. The lower its office, and the less tractable its material, the less of nature it should contain, until a zigzag becomes the best ornament for the hem of a robe, and a mosaic of bits of glass the best design for a colored window. But all these forms of lower art are to be conventional only because they are subordinate—not because conventionalism is in itself a good or desirable thing. All right conventionalism is a wise acceptance of, and compliance with, conditions of restraint or inferiority: it may be inferiority of our knowledge or power, as in the art of a semi-savage nation; or restraint by reason of material, as in the way the glass painter should restrict himself to transparent hue, and a sculptor deny himself the eyelash and the film of flowing hair, which he cannot cut in marble: but in all cases whatever, right conventionalism is either a wise acceptance of an inferior place, or a noble display of power under accepted limitation; it is *not* an improvement of natural form into something better or purer than Nature herself.

Now this great and most precious principle may be compromised in two quite opposite ways. It is compromised on one side when men suppose that the degradation of a natural form which fits it for some subordinate place is an improvement of it; and that a black profile on a red ground, because it is proper on a water-jug, is therefore an idealization of Humanity,

and nobler art than a picture of Titian. And it is compromised equally gravely on the opposite side, when men refuse to submit to the limitation of material and the fitnesses of office—when they try to produce finished pictures in colored glass, or substitute the inconsiderate imitation of natural objects for the perfectness of adapted and disciplined design.



[From "The Oxford Museum," p. 89.]

There is a tendency in the work of the Oxford Museum to err on this last side ; unavoidable, indeed, in the present state of our art-knowledge—and less to be regretted in a building devoted to natural science than in any other : nevertheless, I cannot close this letter without pointing it out, and warning the general reader against supposing that the ornamentation of the Museum is, or can be as yet, a representation of what Gothic work will be, when its revival is complete. Far more severe, yet more perfect and lovely, that work will involve, under sterner conventional restraint, the expression not only of natural form, but of all vital and noble natural law. For the truth of decoration is never to be measured by its imita-

tive power, but by its suggestive and informative power. In the spandril of the iron-work of our roof, for instance, on p. 141, the horse-chestnut leaf and nut are used as the principal elements of form; they are not ill-arranged, and produce a more agreeable effect than convolutions of the iron could have given, unhelped by any reference to natural objects. Nevertheless, I do not call it an absolutely good design; for it would have been possible, with far severer conventional treatment of the iron bars, and stronger constructive arrangement of them, to have given vigorous expression, not of the shapes of leaves and nuts only, but of their peculiar radiant or fanned expansion, and other conditions of group and growth in the tree; which would have been just the more beautiful and interesting, as they would have arisen from deeper research into nature, and more adaptive modifying power in the designer's mind, than the mere leaf termination of a riveted scroll.

I am compelled to name these deficiences, in order to prevent misconception of the principles we are endeavoring to enforce; but I do not name them as at present to be avoided, or even much to be regretted. They are not chargeable either on the architect, or on the subordinate workmen; but only on the system which has for three centuries withheld all of us from healthy study; and although I doubt not that lovelier and juster expressions of the Gothic principle will be ultimately aimed at by us, than any which are possible in the Oxford Museum, its builders will never lose their claim to our chief gratitude, as the first guides in a right direction; and the building itself—the first exponent of the recovered truth —will only be the more venerated the more it is excelled.

Believe me, my dear Acland,

Ever affectionately yours,

J. Ruskin.

[From "The Witness" (Edinburgh), September 16, 1857.]

THE CASTLE ROCK.

DUNBAR, 14*th September*, 1857.

To the Editor of "The Witness."

MY DEAR SIR: As I was leaving Edinburgh this morning, I heard a report which gave me more concern than I can easily express, and very sufficiently spoiled the pleasure of my drive here. If there be no truth in the said report, of course take no notice of this letter; but if there be real ground for my fears, I trust you will allow me space in your columns for a few words on the subject.

The whisper—I hope I may say, the calumny—regarded certain proceedings which are taking place at the Castle. It was said to be the architect's intention to cut down into the brow of the Castle rock, in order to afford secure foundation for some new buildings.[1]

Now, the Castle rock of Edinburgh is, as far as I know, simply the noblest in Scotland conveniently approachable by any creatures but sea-gulls or peewits. Ailsa and the Bass are of course more wonderful; and, I suppose, in the West Highlands there are masses of crag more wild and fantastic; but people only go to see these once or twice in their lives, while the Castle rock has a daily influence in forming the taste, or kindling the imagination, of every promising youth in Edinburgh. Even irrespectively of its position, it is a mass of singular importance among the rocks of Scotland. It is not easy to find among your mountains a "craig" of so definite a form, and on so magnificent a scale. Among the central hills of Scotland, from Ben Wyvis to the Lammermuirs, I know of none comparable to it; while, besides being bold and vast, its bars of basalt are so nobly arranged, and form a series of curves at once so majestic and harmonious, from the turf at their base to the roots of the bastions, that as long as your artists have that crag to study, I do not see that they need casts from Michael Angelo, or any one else, to teach them the laws of composition or the sources of sublimity.

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[1] A new armory was to be added to the Castle.

But if you once cut into the brow of it, all is over. Disturb, in any single point, the simple lines in which the walls now advance and recede upon the tufted grass of its summit, and you may as well make a quarry of it at once, and blast away rock, Castle, and all. It admits of some question whether the changes made in the architecture of your city of late years are in every case improvements; but very certainly you cannot improve the architecture of your volcanic crags by any explosive retouches. And your error will be wholly irremediable. You may restore Trinity Chapel, or repudiate its restoration, at your pleasure, but there will be no need to repudiate restoration of the Castle rock. You cannot re-face nor re-rivet that, nor order another in a "similar style." It is a dangerous kind of engraving which you practise on so large a jewel. But I trust I am wasting my time in writing of this: I cannot believe the report, nor think that the people of Edinburgh, usually so proud of their city, are yet so unaware of what constitutes its chief nobleness, and so utterly careless of the very features of its scenery, which have been the means of the highest and purest education to their greatest men, as to allow this rock to be touched. If the works are confined to the inside of the wall, no harm will be done; but let a single buttress, or a single cleft, encumber or divide its outer brow, and there is not a man of sensibility or sense in Edinburgh who will not blush and grieve for it as long as he lives.

Believe me, my dear Sir, very faithfully yours,

J. RUSKIN.

[From "The Witness" (Edinburgh), September 30, 1857.]

EDINBURGH CASTLE.

PENRITH, *27th September.*

To the Editor of "The Witness."

MY DEAR SIR: I see by some remarks in the *Literary Gazette*[1] on the letter of mine to which you gave a place in your col-

[1] The Literary Gazette of September 26, 1857, after quoting a great part of the previous letter, stated that the new armory was not to be built without all due regard to the preservation of the rock, and that there was therefore no real cause for alarm.

umns of the 16th, that the design of the proposed additions to Edinburgh Castle is receiving really serious consideration. Perhaps, therefore, a few words respecting the popular but usually unprofitable business of castle-building may be of some interest to your readers. We are often a little confused in our ideas respecting the nature of a castle—properly so called. A "castle" is a fortified dwelling-house containing accommodation for as many retainers as are needed completely to defend its position. A "fortress" is a fortified military position, generally understood to be extensive enough to contain large bodies of troops. And a "citadel," a fortified military position connected with a fortified town, and capable of holding out even if the town were taken.

It is as well to be clear on these points: for certain conditions of architecture are applicable and beautiful in each case, according to the use and character of the building; and certain other conditions are in like manner inapplicable and ugly, because contrary to its character, and unhelpful to its use.

Now this helpfulness and unhelpfulness in architectural features depends, of course, primarily on the military practice of the time; so that forms which were grand, because rational, before gunpowder was invented, are ignoble, because ridiculous, in days of shell and shot. The very idea and possibility of the castle proper have passed away with the arms of the middle ages. A man's house might be defended by his servants against a troop of cavalry, if its doors were solid and its battlements pierced. But it cannot be defended against a couple of field-pieces, whatever the thickness of its oak, or number of its arrow-slits.

I regret, as much as any one can regret, the loss of castellated architecture properly so called. Nothing can be more noble or interesting than the true thirteenth or fourteenth century castle, when built in a difficult position, its builder taking advantage of every inch of ground to gain more room, and of every irregularity of surface for purposes of outlook and defence; so that the castle *sate* its rock as a strong rider sits his horse—fitting its limbs to every writhe of the flint beneath it; and fringing the mountain promontory far into the sky with

the wild crests of its fantastic battlements. Of such castles we can see no more; and it is just because I know them well and love them deeply that I say so. I know that their power and dignity consists, just as a soldier's consists, in their knowing and doing their work thoroughly; in their being advanced on edge or lifted on peak of crag, not for show nor pride, but for due guard and outlook; and that all their beautiful irregularities and apparent caprices of form are in reality their fulfilments of need, made beautiful by their compelled association with the wild strength and grace of the natural rock. All attempts to imitate them now are useless—mere girl's play. Mind, I like girl's play, and child's play, in its place, but not in the planning of military buildings. Child's play in many cases is the truest wisdom. I accept to the full the truth of those verses of Wordsworth's[1] beginning—

> "Who fancied what a pretty sight
> This rock would be, if edged around
> With living snowdrops?—circlet bright!
> How glorious to this orchard ground!
> Was it the humor of a child?" etc.

But I cannot apply the same principles to more serious matters, and vary the reading of the verses into application to the works of Edinburgh Castle, thus:

> "Who fancied what a pretty sight
> This rock would be, if edged around
> With tiny turrets, pierced and light,
> How glorious to this warlike ground!"

Therefore, though I do not know exactly what you have got to do in Edinburgh Castle, whatever it may be, I am certain the only right way to do it is the *plain* way. Build what is needed—chapel, barracks, or dwelling-house—in the best places, in a military point of view, of dark stone, and bomb-

[1] Poems of the Fancy, xiv. (1803). The quotation omits two lines after the fourth:

> "Who loved the little rock, and set
> Upon its head this coronet?"

The second stanza then begins: "Was it the humor of a child?" etc

proof, keeping them low, and within the existing lines of ramparts.

That is the rational thing to do ; and the inhabitants of Edinburgh will find it in the end the picturesque thing. It would be so under any circumstances : but it is especially so in this instance ; for the grandeur of Edinburgh Castle depends eminently on the great, unbroken, yet beautifully varied parabolic curve in which it descends from the Round Tower on the Castle Hill to the terminating piece of impendent precipice on the north. It is the last grand feature of Edinburgh left as yet uninjured. You have filled up your valley with a large chimney, a mound, and an Institution ; broken in upon the Old Town with a Bank, a College, and several fires ; dwarfed the whole of Princes Street by the Scott Monument ; and cut Arthur's Seat in half by the Queen's Drive. It only remains for you to spoil the curve of your Castle, and your illustrations of the artistic principle of breadth will be complete.

It may appear at first that I depart from the rule of usefulness I have proposed, in entreating for the confinement of all buildings undertaken within the existing ramparts, in order to preserve the contour of the outside rock. But I presume that in the present state of military science, and of European politics, Edinburgh Castle is not a very important military position ; and that to make it a serviceable fortress or citadel, many additional works would be required, seriously interfering with the convenience of the inhabitants of the New Town, and with the arrangements of the Railroad Company. And, as long as these subordinate works are not carried out, I do not see any use in destroying your beautiful rock, merely to bring another gun to bear, or give accommodation to another company. But I both see, and would earnestly endeavor to advocate, the propriety of keeping the architecture of the building within those ramparts masculine and simple in style, and of not allowing a mistaken conception of picturesqueness to make a noble fortress look like a child's toy.

Believe me, my dear Sir, very faithfully yours,

J. Ruskin.

[From "The Daily Telegraph," December 22, 1871.]

CASTLES AND KENNELS.

To the Editor of "The Daily Telegraph."

SIR: I was astonished the other day by your article on taverns, but never yet in my life was so much astonished by anything in print as by your to-day's article on castles.[1]

I am a castle-lover of the truest sort. I do not suppose any man alive has felt anything like the sorrow or anger with which I have watched the modern destruction by railroad and manufacture, helped by the wicked improvidence of our great families, of half the national memorials of England, either actually or in effect and power of association—as Conway, for instance, now vibrating to ruin over a railroad station. For Warwick Castle, I named it in my letter of last October, in "Fors Clavigera,"[2] as a type of the architectural treasures of

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[1] The article on taverns occurred in the Daily Telegraph of the 8th December, and commented on a recent meeting of the Licensed Victuallers' Protection Society. There was also a short article upon drunkenness as a cause of crime in the Daily Telegraph of December 9—referred to by Mr. Ruskin in a letter which will be found in the second volume of this book. The article on castles concluded with an appeal for public subscriptions towards the restoration of Warwick Castle, then recently destroyed by fire.

[2] The passage alluded to is partly as follows: "It happened also, which was the real cause of my bias in after-life, that my father had a real love of pictures. . . . Accordingly, wherever there was a gallery to be seen, we stopped at the nearest town for the night; and in reverentest manner I thus saw nearly all the noblemen's houses in England; not indeed myself at that age caring for the pictures, but much for castles and ruins, feeling more and more, as I grew older, the healthy delight of uncovetous admiration, and perceiving, as soon as I could perceive any political truth at all, that it was probably much happier to live in a small house and have Warwick Castle to be astonished at, than to live in Warwick Castle, and have nothing to be astonished at; and that, at all events, it would not make Brunswick Square in the least more pleasantly habitable to pull Warwick Castle down. And, at this day, though I have kind invitations enough to visit America, I could not, even for a couple of months, live in a country so miserable as to possess no castles."

this England of ours known to me and beloved from childhood to this hour.

But, Sir, I am at this hour endeavoring to find work and food for a boy of seventeen, one of eight people—two married couples, a woman and her daughter, and this boy and his sister—who all sleep together in one room, some 18 ft. square, in the heart of London ; and you call upon me for a subscription to help to rebuild Warwick Castle.

Sir, I am an old and thoroughbred Tory, and as such I say, "If a noble family cannot rebuild their own castle, in God's name let them live in the nearest ditch till they can."

I am, Sir, your faithful servant,

J. RUSKIN.

DENMARK HILL, *Dec.* 20.

[From "The Daily Telegraph," December 25, 1871.]

VERONA v. WARWICK.

To the Editor of "The Daily Telegraph."

SIR :—Of lodging for poor and rich you will perhaps permit a further word or two from me, even in your close columns for Christmas morning. You think me inconsistent because I wanted to buy Verona, and do not want to restore Warwick.[1]

I wanted, and still want, to buy Verona. I would give half my fortune to buy it for England, if any other people would help me. But I would buy it, that what is left of it might not be burned, and what is lost of it *not* restored. It would indeed be very pleasant—not to me only, but to many other sorrowful persons—if things *could* be restored when we chose. I would subscribe willingly to restore, for instance, the manger wherein the King of Judah lay cradled this day some years since, and not unwillingly to restore the poorer cradle of our English King-maker, were it possible. But for the

[1] In a second article upon the same subject the Daily Telegraph had expressed surprise at Mr. Ruskin's former letter. "Who does not remember," it wrote, "his proposal to buy Verona, so as to secure from decay the glorious monuments in it ?"

making of a new manger, to be exhibited for the edification of the religious British public, I will not subscribe. No ; nor for the building of mock castles, or mock cathedrals, or mocks of anything. And the sum of what I have to say in this present matter may be put in few words.

As an antiquary—which, thank Heaven, I am—I say, "Part of Warwick Castle is burnt—'tis pity. Take better care of the rest."

As an old Tory—which, thank Heaven, I am—I say, "Lord Warwick's house is burned. Let Lord Warwick build a better if he can—a worse if he must ; but in any case, let him neither beg nor borrow."

As a modern renovator and Liberal—which, thank Heaven, I am not—I would say, "By all means let the public subscribe to build a spick-and-span new Warwick Castle, and let the pictures be touched up, and exhibited by gaslight ; let the family live in the back rooms, and let there be a *table d'hôte* in the great hall at two and six every day, 2*s.* 6*d.* a head, and let us have Guy's bowl for a dinner bell."

I am, Sir, your faithful servant,

JOHN RUSKIN.

DENMARK HILL, S.E., *24th* (for 25*th*) *December*.

[From "The Daily Telegraph," January 19, 1871.]

"*NOTRE DAME DE PARIS.*"

To the Editor of "The Daily Telegraph."

SIR : It may perhaps be interesting to some of your readers, in the present posture of affairs round Paris, to know, as far as I am able to tell them, the rank which the Church of Notre Dame holds among architectural and historical monuments.

Nearly every great church in France has some merit special to itself ; in other countries, one style is common to many districts ; in France, nearly every province has its unique and precious monument.

But of thirteenth-century Gothic—the most perfect archi-

tectural style north of the Alps—there is, both in historical interest, and in accomplished perfectness of art, one *unique* monument—the Sainte Chapelle of Paris.

As examples of Gothic, ranging from the twelfth to the fourteenth century, the cathedrals of Chartres, Rouen, Amiens, Rheims, and Bourges, form a kind of cinque-foil round Notre Dame of Paris, of which it is impossible to say which is the more precious petal; but any of those leaves would be worth a complete rose of any other country's work except Italy's. Nothing else in art, on the surface of the round earth, could represent any one of them, if destroyed, or be named as of any equivalent value.

Central among these, as in position, so in its school of sculpture; unequalled in that specialty but by the porch of the north transept of Rouen, and, in a somewhat later school, by the western porches of Bourges; absolutely unreplaceable as a pure and lovely source of art instruction by any future energy or ingenuity, stands—perhaps, this morning, I ought rather to write, stood[1] —Notre Dame of Paris.

I am, Sir, your faithful servant,

J. Ruskin.

[From "The Pall Mall Gazette," March 16, 1872.]

MR. RUSKIN'S INFLUENCE: A DEFENCE.

To the Editor of "The Pall Mall Gazette."

Sir: I receive many letters just now requesting me to take notice of the new theory respecting Turner's work put forward by Dr. Liebreich in his recent lecture at the Royal Institution.[2]

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[1] This letter, it will be noticed, was written during the bombardment and a few days before the capitulation of Paris in 1871.

[2] On Friday, March 8, 1872, entitled Turner and Mulready—On the Effect of certain Faults of Vision on Painting, with especial reference to their Works. The argument of the lecturer, and distinguished oculist, was that the change of style in the pictures of Turner was due to a change in his *eyes* which developed itself during the last twenty years of his life. (See Proceedings of the Royal Institution, 1872, vol. vi., p. 450.)

Will you permit me to observe in your columns, once for all, that I have no time for the contradiction of the various foolish opinions and assertions which from time to time are put forward respecting Turner or his pictures? All that is necessary for any person generally interested in the arts to know about Turner was clearly stated in "Modern Painters" twenty years ago, and I do not mean to state it again, nor to contradict any contradictions of it. Dr. Liebreich is an ingenious and zealous scientific person. The public may derive much benefit from consulting him on the subject of spectacles—not on that of art.

As I am under the necessity of writing to you at any rate, may I say further that I wish your critic of Mr. Eastlake's book [1] on the Gothic revival would explain what he means by saying that my direct influence on architecture is always wrong, and my indirect influence right; because, if that be so, I will try to exercise only indirect influence on my Oxford pupils. But the fact to my own notion is otherwise. I am proud enough to hope, for instance, that I have had some

[1] A History of the Gothic Revival. By Charles L. Eastlake, F.R.I.B.A. London, Longman and Co., 1872.—In this work Mr. Eastlake had estimated very highly Mr. Ruskin's influence on modern architecture, whilst his reviewer was "disposed to say that Mr. Ruskin's direct and immediate influences had almost always been in the wrong; and his more indirect influences as often in the right." It is upon these words that Mr. Ruskin comments here, and to this comment the critic replied in a letter which appeared in the Pall Mall Gazette of the 20th inst. The main portion of his reply was as follows: "The direct influences, then, which I had principally in my mind were those which had resulted in a preference for Venetian over English Gothic, in the underrating of expressional character in architecture, and the overrating of sculptured ornament, especially of a naturalistic and imitative character, and more generally in an exclusiveness which limited the due influence of some, as I think, noble styles of architecture. By the indirect influences I meant the habit of looking at questions of architectural art in the light of imaginative ideas; the recognition of the vital importance of such questions even in their least important details; and generally an enthusiasm and activity which could have resulted from no less a force than Mr. Ruskin's wondrously suggestive genius." To this explanation Mr. Ruskin replied in his second letter on the subject.

direct influence on Mr. Street; and I do not doubt but that the public will have more satisfaction from his Law Courts [1] than they have had from anything built within fifty years. But I have had indirect influence on nearly every cheap villa-builder between this [2] and Bromley; and there is scarcely a public-house near the Crystal Palace but sells its gin and bitters under pseudo-Venetian capitals copied from the Church of the Madonna of Health or of Miracles. And one of my principal notions for leaving my present house is that it is surrounded everywhere by the accursed Frankenstein monsters of, *in*directly, my own making.

I am, Sir, your obedient servant,

JOHN RUSKIN.

March 15.

[From "The Pall Mall Gazette," March 21, 1872.]

MR. RUSKIN'S INFLUENCE: A REJOINDER.

To the Editor of "The Pall Mall Gazette."

SIR: I am obliged by your critic's reply to my question, but beg to observe that, meaning what he explains himself to have meant, he should simply have said that my influence on temper was right, and on taste wrong; the influence being in both cases equally "direct." On questions of taste I will not venture into discussion with him, but must be permitted to correct his statement that I have persuaded any one to prefer Venetian to English Gothic. I have stated that Italian—chiefly Pisan and Florentine—Gothic is the noblest school of Gothic hitherto existent, which is true; and that one form of Venetian Gothic deserves singular respect for the manner of its development. I gave the mouldings and shaft measure-

[1] Mr. Street's design for the New Law Courts was, after much discussion, selected, May 30, 1868, and approved by commission, August, 1870. The building was not, however, begun till February, 1874, and the hope expressed in this letter is therefore, unfortunately, no expression of opinion on the work itself.

[2] Denmark Hill.

ments of that form,[1] and to so little purpose, that I challenge your critic to find in London, or within twenty miles of it, a single Venetian casement built on the sections which I gave as normal. For Venetian architecture developed out of British moral consciousness I decline to be answerable. His accusation that I induced architects to study sculpture more, and what he is pleased to call "expressional character" less, I admit. I should be glad if he would tell me what, before my baneful influence began to be felt, the expressional character of our building was; and I will reconsider my principles if he can point out to me, on any modern building either in London or, as aforesaid, within twenty miles round, a single piece of good sculpture of which the architect repents, or the public complains.

I am, Sir, your faithful servant,

J. RUSKIN.

March 21.

[From "The Liverpool Daily Post," June 9, 1877.]

MODERN RESTORATION.[2]

VENICE, 15th *April*, 1877.

MY DEAR SIR: It is impossible for any one to know the horror and contempt with which I regard modern restoration —but it is so great that it simply paralyzes me in despair,— and in the sense of such difference in all thought and feeling between me and the people I live in the midst of, almost makes it useless for me to talk to them. Of course all restoration is accursed architect's jobbery, and will go on as long as they can get their filthy bread by such business. But things are worse here than in England: you have little there

[1] See Arabian Windows in the Campo Santa Maria, Mater Domini, Plate ii. of the Examples of the Architecture of Venice, selected and drawn to measurement from the edifice, 1851. And see, too, Stones of Venice, vol. ii., chap. vii., Gothic Palaces.

[2] This letter was originally received by "a Liverpool gentleman," and sent inclosed in a long letter signed "An Antiquarian," to the Liverpool Daily Post.

left to lose—here, every hour is ruining buildings of inestimable beauty and historical value—simply to keep stone-lawyers[1] at work. I am obliged to hide my face from it all, and work at other things, or I should die of mere indignation and disgust.

Ever truly yours,

J. RUSKIN.

[From "The Kidderminster Times," July 28, 1877.]

RIBBESFORD CHURCH.

BRANTWOOD, CONISTON, LANCASHIRE,
July 24, 1877.

To the Editor of "The Kidderminster Times."

SIR: It chanced that, on the morning of the Sunday, when the appearances of danger in the walls of Ribbesford Church began seriously to manifest themselves (according to the report in your columns of the 21st inst.),[2] I was standing outside of the church, listening to the singing of the last hymn as the sound came through the open door (with the Archer Knight sculptured above it), and showing to the friend who had brought me to the lovely place the extreme interest of the old perpendicular traceries in the freehand working of the apertures.

Permit me to say, with reference to the proposed restoration of the church, that no modern architect, no mason either, can, or would if they could, "copy" those traceries. They will assuredly put up with geometrical models in their place, which will be no more like the old traceries than a Kensington paper pattern is like a living flower. Whatever else is added or removed, those traceries should be replaced as they are, and left

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[1] An obvious misprint for "stone-layers."

[2] Ribbesford Church was finally closed after the morning service on Sunday, July 15, 1877. It was then restored; and was reopened and reconsecrated on June 15, 1879. The Kidderminster Times of the 21st inst. contained an account of a meeting of the Ribbesford parishioners to consider the restoration of the church. Hence the allusions in this letter to "copying" the traceries.

in reverence until they moulder away. If they are already too much decayed to hold the glass safely (which I do not believe), any framework which may be necessary can be arranged to hold the casements within them, leaving their bars entirely disengaged, and merely kept from falling by iron supports. But if these are to be "copied," why in the world cannot the congregation pay for a new and original church, to display the genius and wealth of the nineteenth century somewhere else, and leave the dear old ruin to grow gray by Severn side in peace?

I am, Sir, your faithful servant,

J. Ruskin.

CIRCULAR[1] RESPECTING MEMORIAL STUDIES OF ST. MARK'S, VENICE, NOW IN PROGRESS UNDER MR. RUSKIN'S DIRECTION.

This circular will be given to visitors to the Old Water-color Society's Exhibition, Pall Mall East, or on application to the Fine Art Society, 148 New Bond Street.

My friends have expressed much surprise at my absence from the public meetings called in defence of St. Mark's. They cannot, however, be too clearly certified that I am now entirely unable to take part in exciting business, or even, without grave danger, to allow my mind to dwell on the subjects which, having once been dearest to it, are now the sources of acutest pain. The illness which all but killed me two years ago[2] was not brought on by overwork, but by grief at the course of public affairs in England, and of affairs, public and private alike, in Venice; the distress of many an old and deeply regarded friend there among the humbler classes of the city being as necessary a consequence of the modern sys-

[1] This circular, which was distributed as above noted during the winter of 1879–80, is here reprinted by Mr. Ruskin's permission, in connection with the preceding letters upon restoration in architecture. See the Notes on Prout and Hunt, 1879–80, p. 71.

[2] In February, 1878; see the Turner Notes of that year, and Fors Clavigera, New Series—Letter the Fourth, March, 1880.

tem of centralization, as the destruction of her ancient civil and religious buildings.

How far forces of this national momentum may be arrested by protest, or mollified by petition, I know not; what in either kind I have felt myself able to do has been done two years since, in conjunction with one of the few remaining representatives of the old Venetian noblesse.[1] All that now remains for me is to use what time may be yet granted for such record as hand and heart can make of the most precious building in Europe, standing yet in the eyes of men and the sunshine of heaven.

The drawing of the first two arches of the west front, now under threat of restoration, which, as an honorary member of the Old Water-color Society, I have the privilege of exhibiting in its rooms this year, shows with sufficient accuracy the actual state of the building, and the peculiar qualities of its architecture.[2] The principles of that architecture are analyzed at length in the second volume of the "Stones of Venice," and the whole façade described there with the best care I could, in hope of directing the attention of English architects to the forms of Greek sculpture which enrich it.[3] The words have been occasionally read for the sound of them; and perhaps, when the building is destroyed, may be some day, with amazement, perceived to have been true.

In the mean time, the drawing just referred to, every touch of it made from the building, and left as the color dried in the spring mornings of 1877, will make clear some of the points chiefly insisted on in the "Stones of Venice," and which are of yet more importance now.[4] Of these, the first and main

[1] Count Alvise Piero Zorzi, the author of an admirable and authoritative essay on the restoration of St. Mark's (Venice, 1877).

[2] This drawing (No. 28 in the Exhibition) was of a small portion of the west front.

[3] Stones of Venice, vol. ii., chapter 4, of original edition, and vol. i., chapter 4, of the smaller edition for the use of travellers.

[4] In the first edition of this circular this sentence ran as follows: "In the mean time, with the aid of the drawing just referred to, every touch of it from the building, and left, as the color dried in the morning light of the 10th May, 1877, some of the points chiefly insisted on in the 'Stones of Venice,' are of importance now."

ones are the exquisite delicacy of the work and perfection of its preservation to this time. It seems to me that the English visitor never realizes thoroughly what it is that he looks at in the St. Mark's porches: its glittering confusion in a style unexampled, its bright colors, its mingled marbles, produce on him no real impression of age, and its diminutive size scarcely any of grandeur. It looks to him almost like a stage scene, got up solidly for some sudden festa. No mere guide-book's passing assertion of date—this century or the other—can in the least make him even conceive, and far less feel, that he is actually standing before the very shafts and stones that were set on their foundations here while Harold the Saxon stood by the grave of the Confessor under the fresh-raised vaults of the first Norman Westminster Abbey, of which now a single arch only remains standing. He cannot, by any effort, imagine that those exquisite and lace-like sculptures of twined acanthus—every leaf-edge as sharp and fine as if they were green weeds fresh springing in the dew, by the Pan-droseion[1]—were, indeed, cut and finished to their perfect grace while the Norman axes were hewing out rough zigzags and dentils round the aisles of Durham and Lindisfarne. Or nearer, in what is left of our own Canterbury—it is but an hour's journey in pleasant Kent—you may compare, almost as if you looked from one to the other, the grim grotesque of the block capitals in the crypt with the foliage of these flexile ones, and with their marble doves—scarcely distinguishable from the living birds that nestle between them. Or, going down two centuries (for the fillings of the portico arches were not completed till after 1204), what thirteenth-century work among our gray limestone walls can be thought of as wrought in the same hour with that wreath of intertwined white marble, relieved by gold, of which the tenderest and sharpest lines of the pencil cannot finely enough express the surfaces and undulations? For indeed, without and within, St. Mark's is not, in the real nature of it, a piece of architecture, but a jewelled casket and painted reliquary, chief of the treasures of what were once the world's treasuries of sacred things, the kingdoms of Christendom.

[1] Printed "Pan-choreion" in the first edition.

A jewelled casket, every jewel of which was itself sacred. Not a slab of it, nor a shaft, but has been brought from the churches descendants of the great Seven of Asia, or from the Christian Greek of Corinth, Crete, and Thrace, or the Christian-Israelite in Palestine—the central archivolt copied from that of the church of the Holy Sepulchre, and the opposing lions or phœnixes of its sculptures from the treasury of Atreus and the citadel of Tyre.

Thus, beyond all measure of value as a treasury of art, it is also, beyond all other volumes, venerable as a codex of religion. Just as the white foliage and birds on their golden ground are descendants, in direct line, from the ivory and gold of Phidias, so the Greek pictures and inscriptions, whether in mosaic or sculpture, throughout the building, record the unbroken unity of spiritual influence from the Father of light—or the races whose own poets had said "We also are his offspring"—down to the day when all their gods, not slain, but changed into new creatures, became the types to them of the mightier Christian spirits; and Perseus became St. George, and Mars St. Michael, and Athena the Madonna, and Zeus their revealed Father in Heaven.

In all the history of human mind, there is nothing so wonderful, nothing so eventful, as this spiritual change. So inextricably is it interwoven with the most divine, the most distant threads of human thought and effort, that while none of the thoughts of St. Paul or the visions of St. John can be understood without our understanding first the imagery familiar to the Pagan worship of the Greeks; on the other hand, no understanding of the real purport of Greek religion can be securely reached without watching the translation of its myths into the message of Christianity.

Both by the natural temper of my mind, and by the labor of forty years given to this subject in its practical issues on the present state[1] of Christendom, I have become, in some

[1] For "state," the first edition reads "mind," and for "have become, in some measure, able," it has "have qualified myself." So again for "am at this moment aided," it reads "am asked, and enabled to do so."

measure, able both to show and to interpret these most precious sculptures; and my health has been so far given back to me that if I am at this moment aided, it will, so far as I can judge, be easily possible for me to complete the work so long in preparation. There will yet, I doubt not, be time to obtain perfect record of all that is to be destroyed. I have entirely honest and able draughtsmen at my command; my own resignation [1] of my Oxford Professorship has given me leisure; and all that I want from the antiquarian sympathy of England is so much instant help as may permit me, while yet in available vigor of body and mind, to get the records made under my own overseership, and registered for sufficient and true. The casts and drawings which I mean to have made will be preserved in a consistent series in my Museum at Sheffield, where I have freehold ground enough to build a perfectly lighted gallery for their reception. I have used the words "I want," as if praying this thing for myself. It is not so. If only some other person could and would undertake all this, Heaven knows how gladly I would leave the task to him. But there is no one else at present able to do it: if not now by me, it can never be done more. And so I leave it to the reader's grace.

J. RUSKIN.

All subscriptions to be sent to Mr. G. ALLEN, Sunnyside, Orpington, Kent.

POSTSCRIPT.[2]

By the kindness of the Society of Painters in Water-colors I am permitted this year, in view of the crisis of the fate of the façade of St. Mark's, to place in the Exhibition-room of the Society ten photographs, illustrative of its past and present state. I have already made use of them, both in my lectures at Oxford and in the parts of *Fors Clavigera* intended for Art-teaching at my Sheffield Museum; and all but the eighth are obtainable from my assistant, Mr. Ward (2 Church Terrace,

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[1] Early in 1879.

[2] Printed in the second edition only.

Richmond), who is my general agent for photographs, either taken under my direction (as here, Nos. 4, 9, and 10,) or specially chosen by me for purposes of Art Education. The series of views here shown are all perfectly taken, with great clearness, from the most important points, and give, consecutively, complete evidence respecting the façade.

They are arranged in the following order:

1. The Central Porch.
2. The Two Northern Porches.
3. The Two Southern Porches.

Arranged in one frame.

4. The Northern Portico.
5. The Southern Portico. *Before restoration.*
6. The West Front, in Perspective. *Seen from the North.*
7. The West Front, in Perspective. *Seen from the South.*
8. The South Side. *Before restoration.*
9. Detail of Central Archivolt.
10. The Cross of the Merchants of Venice.

This last photograph is not of St. Mark's, but is of the inscription which I discovered, in 1877, on the Church of St. James of the Rialto. It is of the 9th or 10th century (according to the best antiquarians of Venice), and is given in this series, first, to confirm the closing paragraph in my notes on the Prout drawings in Bond Street;[1] and secondly, to show

[1] The reference is to the closing paragraph of the Preface to the Notes, which runs as follows: "Athena, observe, of the Agora, or Market *Place*. And St. James of the Deep Stream or Market *River*. The Angels of Honest Sale and Honest Porterage; such honest porterage being the grandeur of the Grand Canal, and of all other canals, rivers, sounds, and seas that ever moved in wavering morris under the night. And the eternally electric light of the embankment of that Rialto stream was shed upon it by the Cross—know you that for certain, you dwellers by high-embanked and steamer-burdened Thames. And learn from your poor wandering painter this lesson—for the sum of the best he had to give you (it is the Alpha of the Laws of true human life)—that no city is prosperous in the sight of Heaven, unless the peasant sells in its market—adding this lesson of Gentile Bellini's for the Omega, that no city is ever righteous in the Sight of Heaven unless the Noble walks in its street."—Notes on Prout and Hunt, p. 44.

the perfect preservation even of the hair-strokes in letters carved in the Istrian marble used at Venice a thousand years ago. The inscription on the cross is—

> "Sit crux vera salus huic tua Christe loco."
> (Be Thy Cross, O Christ, the true safety of this place.)

And on the band beneath—

> "Hoc circa templum sit jus mercantibus æquum,
> Pondera nec vergant nec sit conventio prava."
> (Around this temple let the merchants' law be just,
> Their weights true, and their contracts fair.)

The bearing of this inscription on the relations of Antonio to Shylock may perhaps not be perceived by a public which now —consistently and naturally enough, but ominously—considers Shylock a victim to the support of the principles of legitimate trade, and Antonio a "speculator and sentimentalist." From the series of photographs of St. Mark's itself, I cannot but think even the least attentive observer must receive one strong impression—that of the singular preservation of the minutest details in its sculpture. Observe, this is a quite separate question from the *stability* of the fabric. In our northern cathedrals the stone, for the most part, moulders away ; and the restorer usually replaces it by fresh sculpture, on the faces of walls of which the mass is perfectly secure. Here, at St. Mark's, on the contrary, the only possible pretence for restoration has been, and is, the alleged insecurity of the masses of inner wall—the external sculptures remaining in faultless perfection, so far as unaffected by direct human violence. Both the Greek and Istrian marbles used at Venice are absolutely defiant of hypæthral influences, and the edges of their delicatest sculpture remain to this day more sharp than if they had been cut in steel—for then they would have rusted away. It is especially, for example, of this quality that I have painted the ornament of the St. Jean d'Acre pillars, No. 107, which the reader may at once compare with the daguerrotype (No. 108) beside it, which are exhibited, with the Prout

and Hunt drawings, at the Fine Art Society's rooms.[1] These pillars are known to be not later than the sixth century, yet wherever external violence has spared their decoration it is sharp as a fresh-growing thistle. Throughout the whole façade of St. Mark's, the capitals have only here and there by casualty lost so much as a volute or an acanthus leaf, and whatever remains is perfect as on the day it was set in its place, mellowed and subdued only in color by time, but white still, clearly white; and gray, still softly gray; its porphyry purple as an Orleans plum, and the serpentine as green as a greengage. Note also, that in this throughout perfect decorated surface there is not a loose joint. The appearances of dislocation, which here and there look like yielding of masonry, are merely carelessness in the replacing or resetting of the marble armor at the different times when the front has been retouched—in several cases quite wilful freaks of arrangement. The slope of the porphyry shaft, for instance, on the angle at the left of my drawing, looks like dilapidation. Were it really so, the building would be a heap of ruins in twenty-four hours. These porches sustain no weight above—their pillars carry merely an open gallery; and the inclination of the red marble pilasters at the angle is not yielding at all, but an originally capricious adjustment of the marble armor. It will be seen that the investing marbles between the arch and pilaster are cut to the intended inclination, which brings the latter nearly into contact with the upper archivolt; the appearance of actual contact being caused by the projection of the dripstone. There are, indeed, one or two leaning towers in Venice whose foundations have partly yielded; but if *anything* were in danger on St. Mark's Place, it would be the campanile—three hundred feet high—and not the little shafts and galleries within reach —too easy reach—of the gaslighter's ladder. And the only dilapidations I have myself seen on this porch, since I first drew it forty-six years ago, have been, first, those caused by the insertion of the lamps themselves, and then the breaking away of the marble network of the main capital by the habitual

[1] See the Notes on Prout and Hunt, p. 78.

clattering of the said gaslighter's ladder against it. A piece of it which I saw so broken off, and made an oration over to the passers-by in no less broken Italian, is in my mineral cabinet at Brantwood.

Before leaving this subject of the inclined angle, let me note —usefully, though not to my present purpose—that the entire beauty of St. Mark's campanile depends on this structure, there definitely seen to be one of real safety. This grace and apparent strength of the whole mass would be destroyed if the sides of it were made vertical. In Gothic towers, the same effect is obtained by the retiring of the angle buttresses, without actual inclination of any but the coping lines.

In the Photograph No. 5 the slope of the angles in the correspondent portico, as it stood before restoration, is easily visible and measurable, the difference being, even on so small a scale, full the twentieth of an inch between the breadth at base and top, at the angles, while the lines bearing the inner arch are perfectly vertical.

There was, indeed, as will be seen at a glance, some displacement of the pillars dividing the great window above, immediately to the right of the portico. But these pillars were exactly the part of the south front which carried no weight. The arch above them is burdened only by its own fringes of sculpture: and the pillars carried only the bit of decorated panelling, which is now bent—not outwards, as it would have been by pressure, but inwards. The arch has not subsided; it was always of the same height as the one to the right of it (the Byzantine builders throwing their arches always in whatever lines they chose); nor is there a single crack or displacement in the sculpture of the investing fringe.

In No. 3 (to the right hand in the frame) there is dilapidation and danger enough certainly; but that is wholly caused by the savage and brutal carlessness with which the restored parts are joined to the old. The photograph bears deadly and perpetual witness against the system of "making work," too well known now among English as well as Italian operatives; but it bears witness, as deadly, against the alleged accuracy of the restoration itself. The ancient dentils are

bold, broad, and cut with the free hand, as all good Greek work is; the new ones, little more than half their size, are cut with the servile and horrible rigidity of the modern mechanic.

This quality is what M. Meduna, in the passage quoted from his defence of himself [1] in the Standard, has at once the dulness and the audacity actually to boast of as "*plus exacte*"!

Imagine a Kensington student set to copy a picture by Velasquez, and substituting a Nottingham lace pattern, traced with absolute exactness, for the painter's sparkle and flow and flame, and boasting of his improvements as "*plus exacte*"! That is precisely what the Italian restorer does for *his* original; but, alas! he has the inestimable privilege also of destroying the original; as he works, and putting his student's caricature in its place! Nor are any words bitter or contemptuous enough to describe the bestial stupidities which have thus already replaced the floor of the church, in my early days the loveliest in Italy, and the most sacred.

In the Photograph No. 7 there is, and there only, *one* piece of real dilapidation—the nodding pinnacle propped on the right. Those pinnacles stand over the roof gutters, and their bracket supports are, of course, liable to displacement, if the gutters get choked by frost or otherwise neglected. The pinnacle is not ten feet high, and can be replaced and secured as easily as the cowl on a chimney-pot. The timbers underneath were left there merely to give the wished-for appearance of repairs going on. They defaced the church front through the whole winter of 1876. I copied the bills stuck on them one Sunday, and they are printed in the 78th number of *Fors Clavigera*, the first being the announcement of the Reunited agencies for information on all matters of commercial enterprise and speculation, and the last the announcement of the loss of a cinnamon-colored little bitch, with rather long ears (*coll' orecchie piùtosto lunghe*). I waited through the winter to see how much the Venetians really cared for the look of their

[1] See the Standard (Dec. 3, 1879). M. Meduna was the architect who carried out the "restoration" of the south façade of the Cathedral.

church; but lodged a formal remonstrance in March with one of the more reasonable civic authorities, who presently had them removed. The remonstrance ought, of course, to have come from the clergy; but they contented themselves with cutting flower-wreathes on paper to hang over the central door at Christmas-time. For the rest, the pretence of rottenness in the walls is really too gross to be answered. There are brick buildings in Italy by tens of thousands, Roman, Lombardic, Gothic, on all scales and in all exposures. Which of them has rotted or fallen, but by violence? Shall the tower of Garisenda stand, and the Campanile of Verona, and the tower of St. Mark's, and, forsooth, this little fifty feet of unweighted wall be rotten and dangerous?

Much more I could say, and show; but the certainty of the ruin of poor Bedlamite Venice is in her own evil will, and not to be averted by any human help or pleading. Her *Sabba delle streghe* has truly come; and in her own words (see *Fors*, letter 77th); "Finalmente la Piazza di S. Marcoà sar invasa e completamente illuminata dalle Fiamme di Belzebù. Perchè il *Sabba* possa riuscire più completo, si raccomanda a tutti gli spettatori di fischiare durante le fiamme come anime dannate."

Meantime, in what Saturday pause may be before this Witches' Sabbath, if I have, indeed any English friends, let them now help me, and my fellow-workers, to get such casts, and colorings, and measurings, as may be of use in time to come. I am not used to the begging tone, and will not say more than that what is given me will go in mere daily bread to the workers, and that next year, if I live, there shall be some exposition of what we have got done, with the best account I can render of its parts and pieces. Fragmentary enough they must be,—poor fallen plumes of the winged lion's wings,—yet I think I can plume a true shaft or two with them yet.

Some copies of the second edition of this circular had printed at the top of its last and otherwise blank page the words, "*Present State of Subscription Lists :—*," a printer's error, mistaken by some readers for a piece of dry humor.

Subscriptions were collected by Mr. G. Allen, as above intimated, and also by Mr. F. W. Pullen, secretary to the Ruskin Society of Manchester, under the authority of the following letter, which was printed and distributed by him : "*November* 29, 1879.—DEAR MR. PULLEN : I am very glad to have your most satisfactory letter, and as gladly give you authority to receive subscriptions for drawings and sculptures of St. Mark's. Mr. Bunney's large painting of the whole west façade, ordered by me a year and a half ago, and in steady progress ever since, is to be completed this spring. It was a £500 commission for the Guild, but I don't want to have to pay it with Guild capital. I have the power of getting casts, also, in places where nobody else can, and have now energy enough to give directions, but can no more pay for them out of my own pocket. Ever gratefully yours, J. R. As a formal authority, this had better have my full signature—JOHN RUSKIN." In a further letter to Manchester on the subject, Mr. Ruskin wrote as follows : "It is wholly impossible for me at present to take any part in the defence—at last, though far too late—undertaken by the true artists and scholars of England—of the most precious Christian building in Europe ; . . . nor is there any occasion that I should, if only those who care for me will refer to what I have already written, and will accept from me the full ratification of all that was said by the various speakers, all without exception men of the most accurate judgment and true feeling, at the meeting held in Oxford. All that I think necessary for you to lay, directly from myself, before the meeting you are about to hold, is the explicit statement of two facts of which I am more distinctly cognizant from my long residences in Italy at different periods, and in Venice during these last years than any other person can be—namely, the Infidel—(malignantly and scornfully Infidel and anti-religionist) aim of Italian 'restoration'—and the totality of the destruction it involves, of whatever it touches." So again, in a second and despairing letter, he wrote : "You cannot be too strongly assured of the total destruction involved, in the restoration of St. Mark's. . . . Then the plague of it all is, What can you do? Nothing would be effectual, but the appointment of a Procurator of St. Mark's, with an enormous salary, dependent on the Church's being let alone. What you can do by a meeting at Manchester, I have no notion. The only really practical thing that I can think of would be sending me lots of money to spend in getting all the drawings I can of the old thing before it goes. I don't believe we can save it by

any protests." See the *Birmingham Daily Mail*, Nov. 27, 1879. The reader is also referred to "Fors Clavigera," New Series, Letter the Fourth, pp. 289–90.

The meeting in Oxford alluded to above was held in the Sheldonian Theatre on November 15, 1879. Among the principal speakers were the Dean of Christ Church (in the chair), Dr. Acland, the Professor of Fine Art (Mr. W. B. Richmond), Mr. Street, Mr. William Morris, and Mr. Burne Jones.

LETTERS ON SCIENCE.

I.—GEOLOGICAL.

[From "The Reader," November 12, 1864.]

THE CONFORMATION OF THE ALPS.

DENMARK HILL, 10*th November*, 1864.

MY attention has but now been directed to the letters in your October numbers on the subject of the forms of the Alps.[1] I have, perhaps, some claim to be heard on this question, having spent, out of a somewhat busy life, eleven summers and two winters (the winter work being especially useful, owing to the definition of inaccessible ledges of strata by new-fallen snow) in researches among the Alps, directed solely to the questions of their external form and its mechanical causes; while I left to other geologists the more disputable and difficult problems of relative ages of beds.

I say "more disputable" because, however complex the phases of mechanical action, its general nature admits, among the Alps, of no question. The forms of the Alps are quite *visibly* owing to the action (how gradual or prolonged cannot yet be determined) of elevatory, contractile, and expansive forces, followed by that of currents of water at various temperatures, and of prolonged disintegration—ice having had small share in modifying even the higher ridges, and none in causing or forming the valleys.

[1] The Reader of October 15 contained an article "On the Conformation of the Alps," to which in the following issue of the journal (October 22) Sir Roderick Murchison replied in a letter dated "Torquay, 16th October," and entitled "On the Excavation of Lake-Basins in solid rocks by Glaciers," the possibility of which he altogether denied.

The reason of the extreme difficulty in tracing the combination of these several operative causes in any given instance, is that the effective and destructive drainage by no means follows the leading fissures, but tells fearfully on the softer rocks, sweeping away inconceivable volumes of these, while fissures or faults in the harder rocks of quite primal structural importance may be little deepened or widened, often even unindicated, by subsequent aqueous action. I have, however, described at some length the commonest structural and sculptural phenomena in the fourth volume of "Modern Painters," and I gave a general sketch of the subject last year in my lecture [1] at the Royal Institution (fully reported in the *Journal de Genève* of 2d September, 1863), but I have not yet thrown together the mass of material in my possession, because our leading chemists are only now on the point of obtaining some data for the analysis of the most important of all forces—that of the consolidation and crystallization of the metamorphic rocks, causing them to alter their bulk and exercise irresistible and irregular pressures on neighboring or incumbent beds.

But, even on existing data, the idea of the excavation of valleys by ice has become one of quite ludicrous untenableness. At this moment, the principal glacier in Chamouni pours itself down a slope of twenty degrees or more over a rock two thousand feet in vertical height; and just at the bottom of this ice-cataract, where a water-cataract of equal power would have excavated an almost fathomless pool, the ice simply accumulates a heap of stones, on the top of which it rests.

The lakes of any hill country lie in what are the isolated lowest (as its summits are the isolated highest) portions of its broken surface, and ice no more engraves the one than it builds the other. But how these hollows were indeed first

[1] "On the Forms of the Stratified Alps of Savoy," delivered on June 5, 1863. The subject was treated under three heads. 1. The material of the Savoy Alps. 2. The mode of their formation. 3. The mode of their subsequent sculpture. (See the report of the lecture in the Proceedings of the Royal Institution, 1863, vol., iv., p. 142. It was also printed by the Institution in a separate form, p. 4.)

dug, we know as yet no more than how the Atlantic was dug; and the hasty expression by geologists of their fancies in such matters cannot be too much deprecated, because it deprives their science of the respect really due to it in the minds of a large portion of the public, who know, and *can* know, nothing of its established principles, while they can easily detect its speculative vanity. There is plenty of work for us all to do, without losing time in speculation; and when we have got good sections across the entire chain of the Alps, at intervals of twenty miles apart, from Nice to Innspruch, and exhaustive maps and sections of the lake-basins of Lucerne, Annecy, Como, and Garda, we shall have won the leisure, and may assume the right, to try our wits on the formative question.

J. Ruskin.[1]

[From "The Reader," November 26, 1864.]

CONCERNING GLACIERS.

Denmark Hill, *November* 21.

I am obliged to your Scottish correspondent for the courtesy with which he expresses himself towards me; and, as his letter refers to several points still (to my no little surprise) in dispute among geologists, you will perhaps allow me to occupy, in reply, somewhat more of your valuable space than I had intended to ask for.

I say "to my no little surprise," because the great principles of glacial action have been so clearly stated by their discoverer, Forbes, and its minor phenomena (though in an envious temper, which, by its bitterness, as a pillar of salt, has become the sorrowful monument of the discovery it

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[1] In reply to this letter, the Reader of November 19, 1864, published one from a Scottish correspondent, signed "Tain Caimbeul," the writer of which declared that, whilst he looked on Mr. Ruskin "as a thoroughly reliable guide in all that relates to the external aspects of the Alps," he could not "accept his leadership in questions of political economy or the mechanics of glacier motion."

denies)[1] so carefully described by Agassiz, that I never thought there would be occasion for much talk on the subject henceforward. As much as seems now necessary to be said I will say as briefly as I can.

What a river carries fast at the bottom of it, a glacier carries slowly at the top of it. This is the main distinction between their agencies. A piece of rock which, falling into a strong torrent, would be perhaps swept down half a mile in twenty minutes, delivering blows on the rocks at the bottom audible like distant heavy cannon,* and at last dashed into fragments, which in a little while will be rounded pebbles (having done enough damage to everything it has touched in its course)—this same rock, I say, falling on a glacier, lies on the top of it, and is thereon carried down, if at fullest speed, at the rate of three yards in a week, doing usually damage to nothing at all. That is the primal difference between the work of water and ice; these further differences, however, follow from this first one.

Though a glacier never rolls its moraine into pebbles, as a torrent does its shingle, it torments and teases the said moraine very sufficiently, and without intermission. It is always moving it on, and melting from under it, and one stone is always toppling, or tilting, or sliding over another, and one company of stones crashing over another, with staggering shift of heap behind. Now, leaving out of all account the pulverulent effect of original precipitation to glacier level from two or three thousand feet above, let the reader imagine a mass of sharp granite road-metal and paving stones, mixed up with boulders of any size he can think of, and with wreck of softer rocks (micaceous schists in quantities, usually), the whole, say, half a quarter of a mile wide, and of variable thickness, from

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* Even in lower Apennine, "Dat sonitum saxis, et torto vertice torrens."[2]

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[1] See below, Forbes: his real greatness, pp. 182 *seqq.*, and the references given in the notes there.

[2] Virgil, Æneid, vii. 567.

mere skin-deep mock-moraine on mounds of unsuspected ice —treacherous, shadow-begotten—to a railroad embankment, *passenger*-embankment, one eternal collapse of unconditional ruin, rotten to its heart with frost and thaw (in regions on the edge of each), and withering sun and waste of oozing ice; fancy all this heaved and shovelled, slowly, by a gang of a thousand Irish laborers, twenty miles downhill. You will conjecture there may be some dust developed on the way?—some at the hill bottom? Yet thus you will have but a dim idea of the daily and final results of the movements of glacier moraines—beautiful result in granite and slate dust, delivered by the torrent at last in banks of black and white slime, recovering itself, far away, into fruitful fields, and level floor for human life.

Now all this is utterly independent of any action whatsoever by the ice on its sustaining rocks. It *has* an action on these indeed; but of this limited nature as compared with that of water. A stone at the bottom of a stream, or deep-sea current, necessarily and always presses on the bottom with the weight of the column of water above it—plus the excess of its own weight above that of a bulk of water equal to its own; but a stone under a glacier may be hitched or suspended in the ice itself for long spaces, not touching bottom at all. When dropped at last, the weight of ice may not come upon it for years, for that weight is only carried on certain spaces of the rock bed; and in those very spaces the utmost a stone can do is to press on the bottom with the force necessary to drive the given stone into ice of a given density (usually porous): and, with this maximum pressure, to move at the maximum rate of about a third of an inch in a quarter of an hour! Try to saw a piece of marble through (with edge of iron, not of soppy ice, for saw, and with sharp flint sand for felspar slime), and move your saw at the rate of an inch in three-quarters of an hour, and see what lively and progressive work you will make of it!

I say "a piece of marble;" but your permanent glacier-bottom is rarely so soft—for a glacier, though it acts slowly by friction, can act vigorously by dead-weight on a soft rock, and

(with fall previously provided for it) can clear masses of that out of the way, to some purpose. There is a notable instance of this in the rock of which your correspondent speaks, under the Glacier des Bois. His idea, that the glacier is deep above and thins out below, is a curious instance of the misconception of glacier nature, from which all that Forbes has done cannot yet quite clear the public mind, nor even the geological mind. A glacier never, in a large sense, thins out at all as it expires. It flows level everywhere for its own part, and never slopes but down a slope, as a rapid in water. Pour out a pot of the thickest old white candied, but still fluent, honey you can buy, over a heap of stones, arranged as you like, to imitate rocks.[1] Whatever the honey does on a small scale, the glacier does on a large; and you may thus study the glacier phenomena of current—though, of course, not those of structure or fissure—at your ease. But note this specially: When the honey is at last at rest, in whatever form it has taken, you will see it terminates in tongues with low rounded edges. The possible height of these edges, in any fluid, varies as its viscosity; it is some quarter of an inch or so in water on dry ground; the most fluent ice will stand at about a hundred feet. Next, from this outer edge of the stagnant honey, delicately skim or thin off a little at the top, and see what it will do. It will not stand in an inclined plane, but fill itself up again to a level from behind. Glacier ice does exactly the same thing; and this filling in from behind is done so subtly and delicately that, every winter, the whole glacier surface rises to replace the summer's waste, not with progressive wave, as "twice a day the Severn fills;" but with silent, level insurrection, as of ocean-tide, the gray sea-crystal passes by. And all the structural phenomena of the ice are modified by this mysterious action.

Your correspondent is also not aware that the Glacier des Bois gives a very practical and outspoken proof of its shallowness opposite the Montanvert. Very often its torrent, under wilful touch of Lucina-sceptre, leaps to the light at the top of

[1] See Deucalion, vol. i. p. 93.

the rocks instead of their base.[1] That fiery Arveron, sometimes, hearing from reconnoitring streamlets of a nearer way down to the valley than the rounded ice-curve under the Chapeau, fairly takes bit in teeth, and flings itself out over the brow of the rocks, and down a ravine in them, in the wildest cataract of white-thunder-clouds (endless in thunder, and with quiet fragments of rainbow for lightning), that I have ever blinded myself in the skirts of.

These bare rocks, over which the main river sometimes falls (and outlying streamlets always) are of firm-grained, massively rounded gneiss. Above them, I have no doubt, once extended the upper covering of fibrous and amianthoidal schist, which forms the greater part of the south-eastern flank of the valley of Chamouni. The schistose gneiss is continuous in direction of bed, with the harder gneiss below. But the outer portion is soft, the inner hard, and more granitic. This outer portion the descending glaciers have always stripped right off down to the hard gneiss below, and in places, as immediately above the Montanvert (and elsewhere at the brows of the valley), the beds of schistose gneiss are crushed and bent outwards in a mass (I believe) by the weight of the old glacier, for some fifty feet within their surface. This looks like work ; and work of this sort when it had to be done, the glaciers were well up to, bearing down such soft masses as a strong man bends a poplar sapling ; but by steady push far more than by friction. You may bend or break your sapling with bare hands, but try to rub its bark off with your bare hands !

When once the ice, *with strength always dependent on pre-existent precipice*, has cleared such obstacles out of its way, and made its bed to its liking, there is an end to its manifest and effectively sculptural power. I do not believe the Glacier des Bois has done more against some of the granite surfaces

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[1] There twice a day the Severn fills ;
The salt sea-water passes by,
And hushes half the babbling Wye,
And makes a silence in the hills.
TENNYSON, " In Memoriam," xix.

beneath it, for these four thousand years, than the drifts of desert sand have done on Sinai. Be that as it may, its power of excavation on a level is proved, as I showed in my last letter, to be zero. Your correspondent thinks the glacier power vanishes towards the extremity; but as long as the ice exists, it has the same progressive energy, and, indeed, sometimes, with the quite terminal nose of it, will plough a piece of ground scientifically enough; but it never digs a hole: the stream always comes from under it full speed downhill. Now, whatever the dimensions of a glacier, if it dug a big hole, like the Lake of Geneva, when it was big, it would dig a little hole when it was little—(not that this is *always* safe logic, for a little stone will dig in a glacier, and a large one build; but it is safe within general limits)—which it never does, nor can, but subsides gladly into any hole prepared for it in a quite placid manner, for all its fierce looks.

I find it difficult to stop, for your correspondent, little as he thinks it, has put me on my own ground. I was *forced* to write upon Art by an accident (the public abuse of Turner) when I was two-and-twenty; but I had written a "Mineralogical Dictionary" as far as C, and invented a shorthand symbolism for crystalline forms, before I was fourteen: and have been at stony work ever since, as I could find time, silently, not caring to speak much till the chemists had given me more help.[1] For, indeed, I strive, as far as may be, not to speak of anything till I know it; and in that matter of Political Economy also (though forced in like manner to write of that by unendurable circumfluent fallacy), I know my ground; and if your present correspondent, or any other, will meet me fairly, I will give them uttermost satisfaction upon any point they doubt. There is free challenge; and in the knight of Snowdoun's vows (looking first carefully to see that the rock be not a glacier boulder),

"This rock shall fly
From its firm base, as soon as I."

J. RUSKIN.[2]

[1] See Deucalion, vol. i. p. 3 (Introduction).

[2] Following this letter in the same number of the Reader was one

ENGLISH VERSUS *ALPINE GEOLOGY.*

[From "The Reader," December 3, 1864.]

DENMARK HILL, *29th Nov.*

I SCARCELY know what reply to make, or whether it is necessary to reply at all, to the letter of Mr. Jukes in your last number. There is no antagonism between his views and mine, though he seems heartily to desire that there should be, and with no conceivable motive but to obtain some appearance of it suppresses the latter half of the sentence he quotes from my letter.[1] It is true that he writes in willing ignorance of the Alps, and I in unwilling ignorance of the Wicklow hills; but the only consequent discrepancy of thought or of impression between us is, that Mr. Jukes, examining (by his own account) very old hills, which have been all but washed away to nothing, naturally, and rightly, attributes their present form, or want of form, to their prolonged ablutions, while I, examining new and lofty hills, of which, though much has been carried away, much is still left, as naturally and rightly ascribe a great part of their aspect to the modes of their elevation. The Alp-bred geologist has, however, this advantage, that (especially if he happen at spare times to have been interested in manual arts) he can hardly overlook the effects of denudation on a mountain-chain which sustains Venice on the delta of one of its torrents, and Antwerp on that of another; but the English geologist, however practised in the detection and measurement of faults filled in by cubes of fluor, may be pardoned for dimly appreciating the structure of a district in

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from the well-known geologist Mr. Joseph Beete Jukes, F.R.S., who, writing from "Selly Oak, Birmingham, Nov. 22," described as "the originator of the discussion." He therefore was no doubt the author of the article in the Reader alluded to above (p. 176, note). Mr. Jukes died in 1869.

[1] The following is the sentence from Mr. Jukes' letter alluded to: "Therefore when Mr. Ruskin says that 'the forms of the Alps are quite visibly owing to the action of elevatory, contractile, and expansive forces,' I would entreat him to listen to those who have had their vision corrected by the laborious use of chain and theodolite and protractor for many toilsome years over similar forms."

which a people strong enough to lay the foundation of the liberties of Europe in a single battle,[1] was educated in a fissure of the Lower Chalk.

I think, however, that, if Mr. Jukes can succeed in allaying his feverish thirst for battle, he will wish to withdraw the fourth paragraph of his letter,[2] and, as a general formula, even the scheme which it introduces. That scheme, sufficiently accurate as an expression of one cycle of geological action, contains little more than was known to all leading geologists five-and-twenty years ago, when I was working hard under Dr. Buckland at Oxford;[3] and it is so curiously unworthy of the present state of geological science, that I believe its author, in his calmer moments, will not wish to attach his name to an attempt at generalization at once so narrow, and so audacious. My experience of mountain-form is probably as much more extended than his, as my disposition to generalize respecting it is less;[4] and, although indeed the apparent limitation of the statement which he half quotes (probably owing to his general love of denudation) from my last letter, to the chain of the Alps, was intended only to attach to the words "quite visibly," yet, had I myself expanded that state-

[1] The battle of Sempach (?). See the letters on The Italian Question, at the beginning of the second volume.

[2] To the effect that "the form of the ground is the result wholly of denudation." For the "scheme," consisting of ten articles, see the note § below.

[3] Dr. William Buckland, the geologist, and at one time Dean of Westminster. He died in 1856. See Fors Clavigera, 1873, Letter xxxiv. p. 89.

[4] This and the following sentences allude to parts of the above mentioned scheme. "The whole question," wrote Mr. Jukes, "depends on the relative dates of production of the lithological composition, the petrological structure, and the form of the surface." The scheme then attempts to sketch "the order of the processes which formed these three things," in ten articles, of which the following are specially referred to by Mr. Ruskin: "1. The formation of a great series of stratified rocks on the bed of a sea. . . . 3. The possible intrusion of great masses of granite rock" in more or less fluent state; and 6, 7, 8, 9, which dealt with alternate elevation and depression, of which there might be "even more than one repetition."

ment, I should not have assumed the existence of a sea, to relieve me from the difficulty of accounting for the existence of a lake ; I should not have assumed that all mountain-formations of investiture were marine ; nor claimed the possession of a great series of stratified rocks without inquiring where they were to come from. I should not have thought "even more than one" an adequate expression for the possible number of elevations and depressions which may have taken place since the beginning of time on the mountain-chains of the world ; nor thought myself capable of compressing into Ten Articles, or even into Thirty-nine, my conceptions of the working of the Power which led forth the little hills like lambs, while it rent or established the foundations of the earth ; and set their birth-seal on the forehead of each in the infinitudes of aspect and of function which range between the violet-dyed banks of Thames and Seine, and the vexed Fury-Tower of Cotopaxi.

Not but that large generalizations are, indeed, possible with respect to the diluvial phenomena, among which my antagonist has pursued his—scarcely amphibious?)—investigations. The effects of denudation and deposition are unvarying everywhere, and have been watched with terror and gratitude in all ages. In physical mythology they gave tusk to the Grææ, claw to the Gorgons, bull's frontlet to the floods of Aufidus and Po. They gave weapons to the wars of Titans against Gods, and lifeless seed of life into the hand of Deucalion. Herodotus "rightly spelled" of them, where the lotus rose from the dust of Nile and leaned upon its dew ; Plato rightly dreamed of them in his great vision of the disrobing of the Acropolis to its naked marble ; the keen eye of Horace, half poet's, half farmer's (albeit unaided by theodolite), recognized them alike where the risen brooks of Vallombrosa, amidst the mountain-clamors, tossed their champed shingle to the Etrurian sea, and in the uncoveted wealth of the pastures,

"Quæ Liris quietâ
Mordet aquâ, tactiturnus amnis."[1]

[1] See Herodotus, ii. 92 ; Plato, Critias, 112 ; and Horace, Od. i. 31.

But the inner structure of the mountain-chains is as varied as their substance ; and to this day, in some of its mightier developments, so little understood, that my Neptunian opponent himself, in his address delivered at Cambridge in 1862, speaks of an arrangement of strata which it is difficult to traverse ten miles of Alpine limestone without finding an example of, as beyond the limits of theoretical imagination.[1]

I feel tempted to say more ; but I have at present little time even for useful, and none for wanton, controversy. Whatever information Mr. Jukes can afford me on these subjects (and I do not doubt he can afford me much), I am ready to receive, not only without need of his entreaty, but with sincere thanks. If he likes to try his powers of sight, "as corrected by the laborious use of the protractor," against mine, I will in humility abide the issue. But at present the question before the house is, as I understand it, simply whether glaciers excavate lake-basins or not. That, in spite of measurement and survey, here or elsewhere, seems to remain a question. May we answer the first, if answerable? That determined, I think I might furnish some other grounds of debate in this notable cause of Peebles against Plainstanes, provided that Mr. Jukes will not in future think his seniority gives him the right to answer me with disparagement instead of instruction, and will bear with the English "student's" weakness which induces me, usually, to wish rather to begin by shooting my elephant than end by describing it out of my moral consciousness.[2]

J. Ruskin.

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[1] The address was delivered by Mr. Jukes as President of the Geological Section of the British Association for the Advancement of Science, which met in 1862 at Cambridge. (See the Report of the Association, vol. xxxii. p. 54.)

[2] Mr. Jukes' letter had concluded by recommending English geologists to pursue their studies at home, on the ground that "a student, commencing to learn comparative anatomy, does not think it necessary to go to Africa and kill an elephant." In the following number of the Reader (Dec. 10) Mr. Jukes wrote, in answer to the present letter, that he had not intended to imply any hostility towards Mr. Ruskin, with whose next letter the discussion ended.

[From "The Reader," December 10, 1864.]

CONCERNING HYDROSTATICS.

NORWICH, *5th December.*

YOUR pages are not, I presume, intended for the dissemination of the elements of physical science. Your correspondent "M. A. C." has a good wit, and, by purchasing any common treatise on the barometer, may discover the propriety of exercising it on subjects with which he is acquainted. "G. M." deserves more attention, the confusion in his mind between increase of pressure and increase of density being a very common one.[1] It may be enough to note for him, and for those of your readers whom his letter may have embarrassed, that in any incompressible liquid a body of greater specific gravity than the liquid will sink to any depth, because the column which it forms, together with the vertical column of the liquid above it, always exceeds in total weight the column formed by the equal bulk of the liquid at its side, and the vertical column of liquid above that. Deep-sea soundings would be otherwise impossible. "G. M." may find the explanation of the other phenomena to which he alludes in any elementary work on hydrostatics, and will discover on a little reflection that the statement in my last letter[2] is simply true. Expanded, it is merely that, when we throw a stone into water, we substitute pressure of stone-surface for pressure of water-surface through-

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[1] "M. A. C." wrote "Concerning Stones," and dealt—or attempted to deal—with "atmospheric pressure" in addition to the pressure of water alluded to in Mr. Ruskin's letter of November 26. The letter signed "G. M." was entitled "Mr. Ruskin on Glaciers;" see next note. Both letters appeared in the Reader of December 3, 1864.

[2] Not in the "last letter," but in the last but one—see *ante*, p. 173, "A stone at the bottom of a stream," etc. The parts of "G. M.'s" letter specially alluded to by Mr. Ruskin are as follows:

"It is very evident that the nearer the source of the glacier, the steeper will be the angle at which it advances from above, and the greater its power of excavation. . . . Mr. Ruskin gets rid of the rocks and *débris* on the under side of the glacier by supposing that they are pressed beyond the range of action in the solid body of the ice; but there must be a limit to this, however soft the matrix."

out the area of horizontal contact of the stone with the ground, and add the excess of the stone's weight over that of an equal bulk of water.

It is, however, very difficult for me to understand how any person so totally ignorant of every circumstance of glacial locality and action, as "G. M." shows himself to be in the paragraph beginning "It is very evident," could have had the courage to write a syllable on the subject. I will waste no time in reply, but will only assure him (with reference to his assertion that I "get rid of the rocks," etc.), that I never desire to get rid of anything but error, and that I should be the last person to desire to get rid of the glacial agency by friction, as I was, I believe, the first to reduce to a diagram the probable stages of its operation on the bases of the higher Alpine aiguilles.[1]

Permit me to add, in conclusion, that in future I can take no notice of any letters to which the writers do not think fit to attach their names. There can be no need of initials in scientific discussion, except to shield incompetence or license discourtesy.

J. RUSKIN.

[From "Rendu's Theory of the Glaciers of Savoy," Macmillan, 1874.]

JAMES DAVID FORBES: HIS REAL GREATNESS.[2]

THE incidental passage in "Fors," hastily written, on a contemptible issue, does not in the least indicate my sense of the

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[1] See Modern Painters, Part v., chap. 13, On the Sculpture Mountains, vol. iv. p. 175.

[2] In connection with the question of glacier-motion, Mr. Ruskin's estimate of Professor Forbes and his work is here reprinted from Rendu's Glaciers of Savoy (Macmillan, 1874), pp. 205–207. For a passage on the same subject which was reprinted in the Glaciers of Savoy, in addition to the new matter republished here, and for a statement of the course of glacier-science, and the relation of Forbes to Agassiz, the reader is referred to Fors Clavigera, 1873, Letter xxxiv. pp. 90–94. The "incidental passage" consists of a review of Professor Tyndall's "Forms of Water" (London, 1872), and the "contemptible issue" was that of his position and Forbes' amongst geological discoverers.

real position of James Forbes among the men of his day. I have asked his son's [1] permission to add a few words expressive of my deeper feelings.

For indeed it seems to me that all these questions as to priority of ideas or observations are beneath debate among noble persons. What a man like Forbes first noticed, or demonstrated, is of no real moment to his memory. What he was, and how he taught, is of consummate moment. The actuality of his personal power, the sincerity and wisdom of his constant teaching, need no applause from the love they justly gained, and can sustain no diminution from hostility ; for their proper honor is in their usefulness. To a man of no essential power, the accident of a discovery is apotheosis ; to *him*, the former knowledge of all the sages of earth is as though it were not ; he calls the ants of his own generation round him, to observe how he flourishes in his tiny forceps the grain of sand he has imposed upon Pelion. But from all such vindication of the claims of Forbes to mere discovery, I, his friend, would, for my own part, proudly abstain. I do not in the slightest degree care whether he was the first to see this, or the first to say that, or how many common persons had seen or said as much before. What I rejoice in knowing of him is that he had clear eyes and open heart for all things and deeds appertaining to his life ; that whatever he discerned, was discerned impartially ; what he said, was said securely ; and that in all functions of thought, experiment, or communication, he was sure to be eventually right, and serviceable to mankind, whether out of the treasury of eternal knowledge he brought forth things new or old.

This is the essential difference between the work of men of true genius and the agitation of temporary and popular power. The first root of their usefulness is in subjection of their vanity to their purpose. It is not in calibre or range of intellect that men vitally differ ; every phase of mental character has honorable office ; but the vital difference between the strong

[1] George Forbes, B.A., Professor of Natural Philosophy in the Andersonian University, Glasgow, and editor of The Glaciers of Savoy.

and the weak—or let me say rather, between the availing and valueless intelligence—is in the relation of the love of self to the love of the subject or occupation. Many an Alpine traveller, many a busy man of science, volubly represent to us their pleasure in the Alps; but I scarcely recognize one who would not willingly see them all ground down into gravel, on condition of his being the first to exhibit a pebble of it at the Royal Institution. Whereas it may be felt in any single page of Forbes' writing, or De Saussure's, that they love crag and glacier for their own sake's sake; that they question their secrets in reverent and solemn thirst: not at all that they may communicate them at breakfast to the readers of the *Daily News*—and that, although there were no news, no institutions, no leading articles, no medals, no money, and no mob, in the world, these men would still labor, and be glad, though all their knowledge was to rest with them at last in the silence of the snows, or only to be taught to peasant children sitting in the shade of pines.

And whatever Forbes did or spoke during his noble life was in this manner patiently and permanently true. The passage of his lectures in which he shows the folly of Macaulay's assertion that "The giants of one generation are the pigmies of the next,"[1] beautiful in itself, is more interesting yet in the indication it gives of the general grasp and melodious tone of Forbes' *reverent* intellect, as opposed to the discordant inso-

[1] This saying of Macaulay's occurred in an address which, as M.P. for that city, he delivered at the opening of the Edinburgh Philosophical Institution, in 1846 (Nov. 4). Forbes' criticism of it and of the whole address may be found in a lecture introductory to a course on Natural Philosophy, delivered before the University of Edinburgh (Nov. 1 and 2, 1848), and entitled "The Danger of Superficial knowledge;" under which title it was afterwards printed, together with a newspaper report of Macaulay's address (London and Edinburgh, 1849). In the edition of Macaulay's speeches revised by himself, the sentence in question is omitted, though others of a like nature, such as "The profundity of one age is the shallowness of the next," are retained, and the whole argument of the address remains the same. (See Macaulay's Works, 8 vol. ed., Longmans, 1866. Vol. viii. p. 380, The Literature of Great Britain.) For a second mention of this saying by Mr. Ruskin, see also "Remarks

lence of modernism. His mind grew and took color like an Alpine flower, rooted on rock, and perennial in flower; while Macaulay's swelled like a puff-ball in an unwholesome pasture, and projected itself far round in deleterious dust.

I had intended saying a few words more touching the difference in temper, and probity of heart, between Forbes and Agassiz, as manifested in the documents now [1] laid before the public. And as far as my own feelings are concerned, the death of Agassiz [2] would not have caused my withholding a word. For in all utterance of blame or praise, I have striven always to be kind to the living—just to the dead. But in deference to the wish of the son of Forbes, I keep silence: I willingly leave sentence to be pronounced by time, above their two graves.

JOHN RUSKIN.

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addressed to the Mansfield Art Night Class," 1873, now reprinted in A Joy for Ever (Ruskin's Works, vol. ix. p. 201).

The following are parts of the passage (extending over some pages) in Forbes' lecture alluded to by Mr. Ruskin:

"How false, then, as well as arrogant, is the self-gratulation of those, who, forgetful of the struggles and painful efforts by which knowledge is increased, would place themselves, by virtue of their borrowed acquirements, in the same elevated position with their great teachers—nay, who, perceiving the dimness of light and the feebleness of grasp, with which, often at first, great truths have been perceived and held, find food for pride in the superior clearness of their vision and tenacity of their apprehension!" Then, after quoting some words from Dr. Whewell's Philosophy of the Inductive Sciences, vol. ii. p. 525, and after some further remarks, the lecturer thus continued: "The activity of mind, the earnestness, the struggle after truth, the hopeless perplexity breaking up gradually into the fulness of perfect apprehension,—the dread of error, the victory over the imagination in discarding hypotheses, the sense of weakness and humility arising from repeated disappointments, the yearnings after a fuller revelation, and the sure conviction which attends the final advent of knowledge sought amidst difficulties and disappointments,—these are the lessons and the rewards of the discoverers who first put truth within our reach, but of which we who receive it at second-hand can form but a faint and lifeless conception." (See pp. 39–41 of The Danger of Superficial Knowledge.)

[1] In the edition of Rendu's Glaciers of Savoy already alluded to.

[2] Forbes died Dec. 31, 1868; Agassiz in 1873; and De Saussure in 1845.

The following letters,[1] one from Forbes to myself, written ten years ago, and the other from one of his pupils, received by me a few weeks since, must, however, take their due place among the other evidence on which such judgment is to be given. J. R.

II.—MISCELLANEOUS.

[From "The Artist and Amateur's Magazine" (edited by E. V. Rippingille), February, 1844, pp. 314-319.]

REFLECTIONS IN WATER.[2]

To the Editor of "The Artist and Amateur's Magazine."

SIR: The phenomena of light and shade, rendered to the eye by the surface or substance of water, are so intricate and so multitudinous, that had I wished fully to investigate, or even fully to state them, a volume instead of a page would have been

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[1] The letter from Forbes to Mr. Ruskin (dated December 2, 1864) was presumably elicited by the allusions to Forbes in Mr. Ruskin's letter to the Reader of November 26, 1874 (see *ante*, pp. 171-176). "Advancing years and permanently depressed state of health," ran the letter, "have taken the edge off the bitterness which the injustice I have experienced caused me during many years. But . . . the old fire revives within me when I see any one willing and courageous, like you, to remember an old friend, and to show that you do so." The second letter speaks of the writer's "*boyish enthusiasm*" for Agassiz, an expression to which Mr. Ruskin appends this note: "*The italics are mine.* I think this incidental and naïve proof of the way in which Forbes had spoken of Agassiz to his class, of the greatest value and beautiful interest.—J. R."

[2] In the first edition of Modern Painters (vol. i. p. 330) it was stated that "the horizontal lines cast by clouds upon the sea are not shadows, but reflections;" and that "on clear water near the eye there can never be even the appearance of shadow." This statement being questioned in a letter to the Art Union Journal (November, 1843), and that letter being itself criticised in a review of Modern Painters in the Artist and Amateur's Magazine, p. 262 (December, 1843), there appeared in the last-named periodical two letters upon the subject, of which one was from J. H. Maw, the correspondent of the Art Union, and the other—that reprinted here—a reply from "The Author of Modern Painters."

required for the task. In the paragraphs[1] which I devoted to the subject I expressed, as briefly as possible, the laws which are of most general application—with which artists are indeed so universally familiar, that I conceived it altogether unnecessary to prove or support them: but since I have expressed them in as few words as possible, I cannot afford to have any of those words missed or disregarded; and therefore when I say that on *clear* water, *near* the eye, there is no shadow, I must not be understood to mean that on *muddy* water, *far* from the eye there is no shadow. As, however, your correspondent appears to deny my position in toto, and as many persons, on their first glance at the subject, might be inclined to do the same, you will perhaps excuse me for occupying a page or two with a more explicit statement, both of facts and principles, than my limits admitted in the "Modern Painters."

First, for the experimental proof of my assertion that "on clear water, near the eye, there is no shadow." Your correspondent's trial with the tub is somewhat cumbrous and inconvenient;[2] a far more simple experiment will settle the matter. Fill a tumbler with water; throw into it a narrow strip of white paper; put the tumbler into sunshine; dip your finger into the water between the paper and the sun, so as to throw a shadow across the paper and on the water. The shadow will of course be distinct on the paper, but on the water absolutely and totally invisible.

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[1] The passages in Modern Painters referred to in this letter were considerably altered and enlarged in later editions of the work, and the exact words quoted are not to be found in it as finally revised. The reader is, however, referred to vol. i. part ii., § v., chap. i., "Of Water as painted by the Ancients," in whatever edition of the book he may chance to meet with or possess.

[2] See the Artist and Amateur's Magazine, p. 313, where the author of the letter, to which this is a reply, adduced in support of his views the following experiment, viz.: to put a tub filled with clear water in the sunlight, and then taking an opaque screen with a hole cut in it, to place the same in such a position as to intercept the light falling upon the tub. Then, he argued, cover the hole over, and the tub will be in shadow; uncover it again, and a patch of light will fall on the water, proving that water is *not* "insusceptible of light as well as shadow."

This simple trial of the fact, and your explanation of the principle given in your ninth number,[1] are sufficient proof and explanation of my assertion; and if your correspondent requires authority as well as ocular demonstration, he has only to ask Stanfield or Copley Fielding, or any other good painter of sea; the latter, indeed, was the person who first pointed out the fact to me when a boy. What then, it remains to be determined, are those lights and shades on the sea, which, for the sake of clearness, and because they appear such to the ordinary observer, I have spoken of as "horizontal lines," and which have every appearance of being cast by the clouds like real shadows? I imagined that I had been sufficiently explicit on this subject both at pages 330 and 363;[2] but your correspondent appears to have confused himself by inaccurately receiving the term *shadow* as if it meant darkness of any kind; whereas my second sentence—"every *darkness* on water is reflection, not shadow"—might have shown him that I used it in its particular sense, as meaning the absence of *positive* light on a visible surface. Thus, in endeavoring to support his assertion that the shadows on the sea are as distinct as on a grass field, he says that they are so by contrast with the "light *reflected* from its polished surface;" thus showing at once that he has been speaking and thinking all along, not of shadow, but of the absence of reflected light—an absence which is no more shadow than the absence of the image of a piece of white paper in a mirror is shadow on the mirror.

The question, therefore, is one of terms rather than of things; and before proceeding it will be necessary for me to make your correspondent understand thoroughly what is meant by the term shadow as opposed to that of reflection.

Let us stand on the sea-shore on a cloudless night, with a full moon over the sea, and a swell on the water. Of course a long line of splendor will be seen on the waves under the

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[1] In the review of Modern Painters mentioned above.

[2] Of the first edition of the first volume of Modern Painters. The size of the book (and consequently the paging) was afterwards altered to suit the engravings contained in the last three volumes.

moon, reaching from the horizon to our very feet. But are those waves between the moon and us *actually* more illuminated than any other part of the sea? Not one whit. The whole surface of the sea is under the same full light, but the waves between the moon and us are the only ones which are in a position to reflect that light to our eyes. The sea on both sides of that path of light is in perfect darkness—almost black. But is it so from shadow? Not so, for there is nothing to intercept the moonlight from it: it is so from position, because it cannot reflect any of the rays which fall on it to our eyes, but reflects instead the dark vault of the night sky. Both the darkness and the light on it, therefore—and they are as violently contrasted as may well be—are nothing but reflections, the whole surface of the water being under one blaze of moonlight, entirely unshaded by any intervening object whatsoever.[1]

Now, then, we can understand the cause of the chiaro-scuro of the sea by daylight with lateral sun. Where the sunlight reaches the water, every ripple, wave, or swell reflects to the eye from some of its planes either the image of the sun or some portion of the neighboring bright sky. Where the cloud interposes between the sun and sea, all these luminous reflections are prevented, and the raised planes of the waves reflect only the dark under-surface of the cloud; and hence, by the multiplication of the images, spaces of light and shade are produced, which lie on the sea precisely in the position of real or positive lights and shadows—corresponding to the outlines of the clouds—laterally cast, and therefore seen in addition to, and at the same time with, the ordinary or direct reflection, vigorously contrasted, the lights being often a blaze of gold, and the shadows a dark leaden gray; and yet, I repeat, they are no more real lights, or real shadows, on the sea, than the image of a black coat is a shadow on a mirror, or the image of white paper a light upon it.

[1] It may be worth noting that the optical delusion above explained is described at some length by Mr. Herbert Spencer (The Study of Sociology, p. 191, London, 1874) as one of the commonest instances of popular ignorance.

Are there, then, *no* shadows whatsoever upon the sea? Not so. My assertion is simply that there are none on clear water near the eye. I shall briefly state a few of the circumstances which give rise to real shadow in distant effect.

I. Any admixture of opaque coloring matter, as of mud, chalk, or powdered granite renders water capable of distinct shadow, which is cast on the earthly and solid particles suspended in the liquid. None of the seas on our south-eastern coast are so clear as to be absolutely incapable of shade ; and the faint tint, though scarcely perceptible to a near observer,* is sufficiently manifest when seen in large extent from a distance, especially when contrasted, as your correspondent says, with reflected lights. This was one reason for my introducing the words—"near the eye."

There is, however, a peculiarity in the appearances of such shadows which requires especial notice. It is not merely the transparency of water, but its polished surface, and consequent reflective power, which render it incapable of shadow. A perfectly opaque body, if its power of reflection be perfect, receives no shadow (this I shall presently prove) ; and therefore, in any lustrous body, the incapability of shadow is in proportion to the power of reflection. Now the power of reflection in water varies with the angle of the impinging ray, being of course greatest when that angle is least: and thus, when we look along the water at a low angle, its power of reflection maintains its incapability of shadow to a considerable extent, in spite of its containing suspended opaque matter ; whereas, when we look *down* upon water from a height, as we then receive from it only rays which have fallen on it at a large angle, a great number of those rays are unreflected from the surface, but penetrate beneath the surface, and are then reflected † from the suspended opaque matter : thus rendering

* Of course, if water be perfectly foul, like that of the Rhine or Arve, it receives a shadow nearly as well as mud. Yet the succeeding observations on its reflective power are applicable to it, even in this state.

† It must always be remembered that there are two kinds of reflection,—one from polished bodies, giving back rays of light

shadows clearly visible which, at a small angle, would have been altogether unperceived.

II. But it is not merely the presence of opaque matter which renders shadows visible on the sea seen from a height. The eye, when elevated above the water, receives rays reflected from the bottom, of which, when *near* the water, it is insensible. I have seen the bottom at seven fathoms, so that I could count its pebbles, from the cliffs of the Cornish coast; and the broad effect of the light and shade of the bottom is discernible at enormous depths. In fact, it is difficult to say at what depth the rays returned from the bottom become absolutely ineffective—perhaps not until we get fairly out into blue water. Hence, with a white or sandy shore, shadows forcible enough to afford conspicuous variety of color may be seen from a height of two or three hundred feet.

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unaltered; the other from unpolished bodies, giving back rays of light altered. By the one reflection we see the images of other objects on the surface of the reflecting object; by the other we are made aware of that surface itself. The difference between these two kinds of reflection has not been well worked by writers on optics; but the great distinction between them is, that the rough body reflects most rays when the angle at which the rays impinge is largest, and the polished body when the angle is smallest. It is the reflection from polished bodies exclusively which I usually indicate by the term; and that from rough bodies I commonly distinguish as "positive light;" but as I have here used the term in its general sense, the explanation of the distinction becomes necessary. All light and shade on matter is caused by reflection of some kind; and the distinction made throughout this paper between reflected and positive light, and between *real* and pseudo shadow, is nothing more than the distinction between two kinds of reflection.

I believe some of Bouguer's [1] experiments have been rendered inaccurate—not in their general result, nor in *ratio* of quantities, but in the quantities themselves—by the difficulty of distinguishing between the two kind of reflected rays.

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[1] Pierre Bouguer, author of, amongst other works, the Traité d'Optique sur la Gradation de la Lumière. He was born in 1698, and died in 1758.

III. The actual color of the sea itself is an important cause of shadow in distant effect. Of the ultimate causes of local color in water I am not ashamed to confess my total ignorance, for I believe Sir David Brewster himself has not elucidated them. Every river in Switzerland has a different hue. The lake of Geneva, commonly blue, appears, under a fresh breeze, striped with blue and bright red; and the hues of coast-sea are as various as those of a dolphin; but, whatever be the cause of their variety, their intensity is, of course, dependent on the presence of sunlight. The sea under shade is commonly of a cold gray hue; in the sunlight it is susceptible of vivid and exquisite coloring: and thus the forms of clouds are traced on its surface, not by light and shade, but by variation of *color* by grays opposed to greens, blues to rose-tints, etc. All such phenomena are chiefly visible from a height and a distance; and thus furnished me with additional reasons for introducing the words—"near the eye."

IV. Local color is, however, the cause of one beautiful kind of chiaro-scuro, visible when we are close to the water—shadows cast, not *on* the waves, but through them, as through misty air. When a wave is raised so as to let the sun-light through a portion of its body, the contrast of the transparent chrysoprase green of the illuminated parts with the darkness of the shadowed is exquisitely beautiful.

Hitherto, however, I have been speaking chiefly of the *transparency* of water as the source of its incapability of shadow. I have still to demonstrate the effect of its polished surface.

Let your correspondent pour an ounce or two of quicksilver into a flat white saucer, and, throwing a strip of white paper into the middle of the mercury, as before into the water, interpose an upright bit of stick between it and the sun: he will then have the pleasure of seeing the shadow of the stick sharply defined on the paper and the edge of the saucer, while on the intermediate portion of mercury it will be totally invisible.* Mercury is a perfectly opaque body, and its incapability

* The mercury must of course be perfectly clean.

of shadow is entirely owing to the perfection of its polished surface. Thus, then, whether water be considered as transparent or reflective (and according to its position it is one or the other, or partially both—for in the exact degree that it *is* the one, it is *not* the other), it is equally incapable of shadow. But as on distant water, so also on near water, when broken, pseudo shadows take place, which are in reality nothing more than the aggregates of reflections. In the illuminated space of the wave, from every plane turned towards the sun there flashes an image of the sun; in the *un*-illuminated space there is seen on every such plane only the dark image of the interposed body. Every wreath of the foam, every jet of the spray, reflects in the sunlight a thousand diminished suns, and refracts their rays into a thousand colors; while in the shadowed parts the same broken parts of the wave appear only in dead, cold white; and thus pseudo shadows are caused, occupying the position of real shadows, defined in portions of their edge with equal sharpness: and yet, I repeat, they are no more real shadows than the image of a piece of black cloth is a shadow on a mirror.

But your correspondent will say, "What does it matter to me, or to the artist, whether they *are* shadows or not? They are darkness, and they supply the place of shadows, and that it is all I contend for." Not so. They do *not* supply the place of shadows; they are divided from them by this broad distinction, that while shadow causes uniform deepening of the ground-tint in the objects which it affects, these pseudo shadows are merely portions of that ground-tint itself undeepened, but cut out and rendered conspicuous by flashes of light irregularly disposed around it. The ground-tint both of shadowed and illumined parts is precisely the same—a pure pale gray, catching as it moves the hues of the sky and clouds; but on this, in the illumined spaces, there fall touches and flashes of intense reflected light, which are absent in the shadow. If, for the sake of illustration, we consider the wave as hung with a certain quantity of lamps, irregularly disposed, the shape and extent of a shadow on that wave will be marked by the lamps being all put out within its in-

fluence, while the tint of the water itself is entirely unaffected by it.

The works of Stanfield will supply your correspondent with perfect and admirable illustrations of this principle. His water-tint is equally clear and luminous whether in sunshine or shade ; but the whole lustre of the illumined parts is attained by bright isolated touches of reflected light.

The works of Turner will supply us with still more striking examples, especially in cases where slanting sunbeams are cast from a low sun along breakers, when the shadows will be found in a state of perpetual transition, now defined for an instant on a mass of foam, then lost in an interval of smooth water, then coming through the body of a transparent wave, then passing off into the air upon the dust of the spray—supplying, as they do in nature, exhaustless combinations of ethereal beauty. From Turner's habit of choosing for his subjects sea much broken with foam, the shadows in his works are more conspicuous than in Stanfield's, and may be studied to greater advantage. To the works of these great painters, those of Vandevelde may be opposed for instances of the impossible. The black shadows of this latter painter's neat waves supply us with innumerable and most illustrative examples of everything which sea shadows are *not*.

Finally, let me recommend your correspondent, if he wishes to obtain perfect knowledge of the effects of shadow on water, whether calm or agitated, to go through a systematic examination of the works of Turner. He will find *every* phenomenon of this kind noted in them with the most exquisite fidelity. The Alnwick Castle, with the shadow of the bridge cast on the dull surface of the moat, and mixing with the reflection, is the most finished piece of water-painting with which I am acquainted. Some of the recent Venices have afforded exquisite instances of the change of color in water caused by shadow, the illumined water being transparent and green, while in the shade it loses its own color, and takes the blue of the sky.

But I have already, Sir, occupied far too many of your valuable pages, and I must close the subject, although hundreds

of points occur to me which I have not yet illustrated.* The discussion respecting the Grotto of Capri is somewhat irrelevant, and I will not enter upon it, as thousands of laws respecting light and color are there brought into play, in addition to the water's incapability of shadow.[1] But it is somewhat singular that the Newtonian principle, which your correspondent enunciates in conclusion, is the *very cause* of the incapability of shadow which he disputes. I am not, however, writing a treatise on optics, and therefore can at present do no more than simply explain what the Newtonian law actually signifies, since, by your correspondent's enunciation of it, "pellucid substances reflect light only from their surfaces," an inexperienced reader might be led to conclude that *opaque* bodies reflected light from something else than their surfaces.

The law is, that whatever number of rays escape reflection at the surface of the water, pass through its body without further reflection, being therein weakened, but not reflected; but that, where they pass *out* of the water again, as, for instance, if there be air-bubbles at the bottom, giving an under-surface to the water, there a number of rays are reflected from that under-surface, and do *not* pass out of the water, but return to the eye; thus causing the bright luminosity of the under bubbles. Thus water reflects from both its surfaces—it reflects it when passing out as well as when entering; but it reflects none whatever from its own interior mass. If it did, it would be capable of shadow.

I have the honor to be, Sir,

Your most obedient servant,

THE AUTHOR OF "MODERN PAINTERS."

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*Among other points, I have not explained why water, though it has no shadow, has a dark side. The cause of this is the Newtonian law noticed below, that water weakens the rays passing through its mass, though it reflects none; and, also, that it reflects rays from both surfaces.

[1] The review of Modern Painters had mentioned the Grotto of Capri, near Naples, as "a very beautiful illustration of the great quantity of light admitted or contained in water," and on this Mr. J. H. Maw had commented.

[From "The London Review," May 16, 1861.]

THE REFLECTION OF RAINBOWS IN WATER.[1]

To the Editor of "The London Review."

SIR: I do not think there is much difficulty in the rainbow business. We cannot see the reflection of the same rainbow which we behold in the sky, but we see the reflection of another invisible one within it. Suppose A and B, Fig. 1, are two falling raindrops, and the spectator is at S, and X Y is the water surface. If R A S be a sun ray giving, we will say, the red ray in the visible rainbow, the ray, B C S, will give the same red ray, reflected from the water at C.

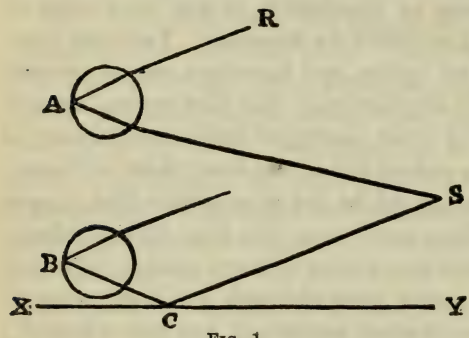


FIG. 1.

It is rather a long business to examine the lateral angles, and I have not time to do it; but I presume the result would be, that if *a m b*, Fig. 2, be the visible rainbow, and X Y the water horizon, the reflection will be the dotted line *c e d*, reflecting, that is to say, the invisible bow, *c n d*; thus, the terminations of the arcs of the visible and reflected bows do not coincide.

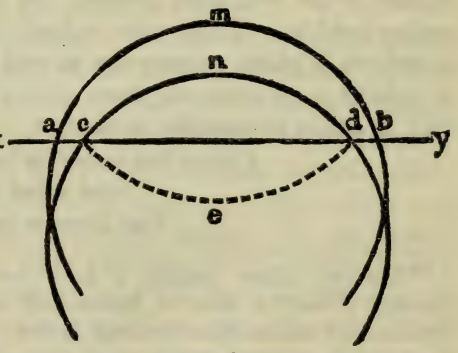


FIG. 2.

The interval, *m n*, depends on the position of the spectator with respect to the water surface. The thing can hardly ever

[1] The London Review of May 4 contained a critique of the Exhibition of the Society of Water-colors, which included a notice of Mr. Duncan's

be seen in nature, for if there be rain enough to carry the bow to the water surface, that surface will be ruffled by the drops, and incapable of reflection.

Whenever I have seen a rainbow over water (sea, mostly), it has stood on it reflectionless; but interrupted conditions of rain might be imagined which would present reflection on near surfaces.

Always very truly yours,

J. RUSKIN.

7th May, 1861.

[From "The Proceedings of the Ashmolean Society," May 10, 1841.]

A LANDSLIP NEAR GIAGNANO.

"THE Secretary read a letter [1] from J. Ruskin, Esq., of Christ Church, dated Naples, February 7, 1841, and addressed to Dr. Buckland,[2] giving a description of a recent landslip near that place, which had occasioned a great loss of life: it occurred at the village of Giagnano, near Castel-a-mare, on the 22d of January last. The village is situated on the slope of a conical hill of limestone, not less than 1400 feet in height, and composed of thin beds similar to those which form the greater part of the range of Sorrento. The hill in question is nearly isolated, though forming part of the range, the slope of its sides uniform, and inclined at not less than 40°. Assisted by projecting ledges of the beds of rock, a soil has accumulated on this slope three or four feet in depth, rendering it quite smooth and uniform. The higher parts are covered in many places with brushwood, the lower with vines trellised over old mulberry trees. There are slight evidences of recent aqueous action on the sides of the hill, a few gullies descending towards the east side of the village. After two days of heavy

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"Shiplake, on the Thames" (No. 52). In this picture the artist had painted a rainbow reflected in the water, the truth of which to nature was questioned by some of his critics. Mr. Ruskin's was not the only letter in support of the picture's truth.

[1] The present letter is the earliest in date of any in these volumes.

[2] See note to p. 178.

rain, on the evening of January 22, a torrent of water burst down on the village to the west of these gullies, and the soil accumulated on the side of the hill gave way in a wedge-shaped mass, the highest point being about 600 feet above the houses, and slid down, leaving the rocks perfectly bare. It buried the nearest group of cottages, and remained heaped up in longitudinal layers above them, whilst the water ran in torrents over the edge towards the plain, sweeping away many more houses in its course. To the westward of this point another slip took place of smaller dimensions than the first, but coming on a more crowded part of the village, overwhelmed it completely, occasioning the loss of 116 lives."

[From "The Athenæum," February 14, 1857.]

THE GENTIAN.[1]

DENMARK HILL, *Feb.* 10.

IF your correspondent "Y. L. Y." will take a little trouble in inquiring into the history of the gentian, he will find that, as is the case with most other flowers, there are many species of it. He knows the dark blue gentian (*Gentiana acaulis*) because it grows, under proper cultivation, as healthily in England as on the Alps. And he has *not* seen the pale blue gentian (*Gentiana verna*) shaped like a star, and of the color of the sky, because that flower grows unwillingly, if at all, except on its native rocks. I consider it, therefore, as specially characteristic of Alpine scenery, while its beauty, to my mind, far exceeds that of the darker species.

I have, etc.,

J. RUSKIN.

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[1] In the Notes on the Turner Gallery at Marlborough House, 1856 (p. 23), Mr. Ruskin speaks of the "pale ineffable azure" of the gentian. The present letter was written in reply to one signed "Y. L. Y." in the Athenæum of February 7, 1857 in which this expression was criticised. In a subsequent issue of the same journal (February 21) Mr. Ruskin's querist denied the ignorance imputed to him, and still questioned the propriety of calling the gentian "pale," without at the same time distinguishing the two species.

[Date and place of original publication unknown.]

ON THE STUDY OF NATURAL HISTORY.

To Adam White, of Edinburgh.

It would be pleasing alike to my personal vanity and to the instinct of making myself serviceable, which I will fearlessly say is as strong in me as vanity, if I could think that any letter of mine would be helpful to you in the recommendation of the study of natural history, as one of the best elements of early as of late education. I believe there is no child so dull or so indolent but it may be roused to wholesome exertion by putting some practical and personal work on natural history within its range of daily occupation; and, once aroused, few pleasures are so innocent, and none so constant. I have often been unable, through sickness or anxiety, to follow my own art work, but I have never found natural history fail me, either as a delight or a medicine. But for children it must be curtly and wisely taught. We must *show* them things, not tell them names. A deal chest of drawers is worth many books to them, and a well-guided country walk worth a hundred lectures.

I heartily wish you, not only for your sake, but for that of the young thistle buds of Edinburgh, success in promulgating your views and putting them in practice.

Always believe me faithfully yours,

J. Ruskin.

END OF VOLUME I.

VOLUME TWO

LETTERS ON POLITICS, ECONOMY, AND MISCELLANEOUS MATTERS

NOTE TO THE SECOND VOLUME.

The letters relating to Mr. Ruskin's Candidature for the Lord Rectorship of Glasgow University were published when this volume was almost out of the printers' hands. They have however been included, by Mr. Ruskin's wish, and will be found at the end of this volume, where a letter to the late Mr. W. H. Harrison, which has just been brought to my notice, and two very recent letters on Dramatic Reform, have, at the cost of some delay, been also added.—[ED.]

November 15, 1880.

NOTE.—*In the second and third columns the bracketed words and figures are more or*

TITLE OF LETTER.	WHERE WRITTEN.
Letter to W. C. Bennett, LL.D.	Herne Hill, Dulwich
Letter to Dr. Guthrie	[Edinburgh]
Letter to W. H. Harrison	[Herne Hill
"Limner" and Illumination	[Denmark Hill
The Animals of Scripture: a Review	[Denmark Hill
The Sale of Mr. Windus' Pictures	Denmark Hill
The Italian Question	Berlin
" "	Berlin
" "	Schaffhausen
Coventry Patmore's "Faithful for Ever"	Denmark Hill
Proverbs on Right Dress	Geneva
Oak Silkworms	Geneva
The Depreciation of Gold	Chamounix
The Foreign Policy of England	Zurich
The Position of Denmark	Denmark Hill
The Law of Supply and Demand	Denmark Hill
" " "	Denmark Hill
" " "	Denmark Hill
Strikes v. Arbitration	[Denmark Hill]
Work and Wages	Denmark Hill
" "	Denmark Hill
" "	[Denmark Hill]
" "	Denmark Hill
" "	[Denmark Hill]
Domestic Servants—Mastership	Denmark Hill
" " Experience	Denmark Hill
" " Sonship and Slavery	Denmark Hill
Modern Houses	Denmark Hill
Our Railway System	Denmark Hill
The Jamaica Insurrection	Denmark Hill
At the Play	Denmark Hill
The Standard of Wages	Denmark Hill
An Object of Charity	Denmark Hill, S.
True Education	Denmark Hill, S.
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Is England Big Enough?	Denmark Hill
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Employment for the Destitute Poor, etc.	Denmark Hill, S.E.
Notes on the Destitute Classes, etc	[Denmark Hill]
The Morality of Field Sports	Denmark Hill
Female Franchise	Venice
The Franco-Prussian War	Denmark Hill, S.E.
" " "	[Denmark Hill, S.E.]
Sad-Colored Costumes	Denmark Hill, S.E.
Railway Safety	Denmark Hill
A King's First Duty	[Denmark Hill]
A Nation's Defences	Denmark Hill
The Waters of Comfort	Oxford
The Streams of Italy	Oxford
Woman's Sphere (extract)	[Oxford
The "Queen of the Air"	[Denmark Hill]
Drunkenness and Crime	Denmark Hill
The Streets of London	[Denmark Hill]

less certainly conjectured; whilst those unbracketed give the actual dating of the letters.

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ARROWS OF THE CHACE.

LETTERS ON POLITICS AND WAR.

[From "The Scotsman," July 20, 1859.]

THE ITALIAN QUESTION.[1]

BERLIN, *June* 6, 1859.

I HAVE been thinking of sending a few lines about what I have seen of Austrians and Italians; but every time I took my pen and turned from my own work about clouds and leafage to think for a few minutes concerning political clouds and thickets, I sank into a state of amazement which reduced me to helpless silence. I will try and send you an incoherent line to-day; for the smallest endeavor at coherence will bring me into that atmosphere of astonishment again, in which I find no expression.

You northern Protestant people are always overrating the value of Protestantism as such. Your poetical clergymen make sentimental tours in the Vaudois country, as if there were no worthy people in the Alps but the Vaudois. Did the enlightened Edinburgh evangelicals never take any interest in the freedom of the Swiss, nor hear of such people as Winkel-

[1] This and the two following letters deal, it will be seen, with "the Italian question" in 1859, when the peace of Europe was disturbed by the combined action of France and Sardinia against Austria in the cause of Italian independence. Of these three letters the first was written two days after the defeat of the Austrians at Magenta, followed by the entrance into Milan of the French, and the second a few days before the similar victory of the French and Sardinian armies at Solferino.

ried or Tell? Not but that there is some chance of Tell disappearing one of these days under acutest historical investigation. Still he, or somebody else, verily got Switzerland rid of much evil, and made it capable of much good; and if you examine the influence of the battles of Morgarten and Sempach on European history, you will find they were good and true pieces of God's work.[1] Do people suppose they were done by Protestants? Switzerland owes all that she is—all that she is ever likely to be—to her stout and stern Roman Catholics, faithful to their faith to this day—they, and the Tyrolese, about the truest Roman Catholics in Christendom and certainly among its worthiest people, though they laid your Zuingli and a good deal of ranting Protestantism which Zuingli in vain tried to make either rational or charitable, dead together on the green meadows of Cappel, and though the Tyrolese marksmen at this moment are following up their rifle practice to good purpose, and with good will, with your Vaudois hearts for targets.

The amazement atmosphere keeps floating with its edges about me, though I write on as fast as I can in hopes of keeping out of it. You Scotch, and we English ! ! to keep up the miserable hypocrisy of calling ourselves Protestants! And here have been two of the most powerful protests (sealed with quite as much blood as is usually needed for such documents)

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[1] Few readers need be reminded of the position of Tell in the list of Swiss patriots (*pace* the "acutest historical investigation," which puts him in the list of mythical personages) in the early part of the fourteenth century; of Arnold von Winkelried who met the heroic death, by which he secured his country's freedom, at Sempach in 1386; or of Ulrich Zuingli, the Swiss Protestant leader of his time, who fell at Cappel, in the war of the Reformed against the Romish Cantons, in 1531. At the battle of Morgarten, in 1315, twenty thousand Austrians were defeated by no more than thirteen hundred Swiss, with such valor that the name of the victors' canton was thereupon extended to the whole country, thenceforth called Switzerland.

It may be further noted that Arnold of Sempach is, with Leonidas, Curtius, and Sir Richard Grenville, named amongst the types of "the divinest of sacrifices, that of the patriot for his country" in Mr. Ruskin's Preface, Bibliotheca Pastorum, vol. i. p. xxxiii.

that ever were made against the Papacy—one in 1848,[1] and one now—twenty thousand men or thereabouts lying, at this time being, in the form of torn flesh and shattered bones, among the rice marshes of the Novarrese, and not one jot of our precious Protestant blood gone to the signature. Not so much as one noble flush of it, that I can see, on our clay cheeks, besmirched, as they are, with sweat and smoke; but all for gold, and out of chimneys. Of sweat for bread that perishes not, or of the old Sinai smoke for honor of God's law, and revelation thereof—no drop nor shadow. Not so much as a coroner's inquest on those dead bodies in the rice fields —dead men who must have been murdered by somebody. If a drunken man falls in a ditch, you will have your Dogberry and Verges talk over him by way of doing justice; but your twenty thousand—not drunken, but honest, respectable, well-meaning, and serviceable men—are made rice manure of, and you think it is all right. We Protestants indeed! The Italians are Protestants, and in a measure the French—nay, even the Austrians (at all events those conical-hatted mountaineers), according to their understanding of the matter. What we are, Moloch or Mammon, or the Protestant devil made up of both, perhaps knows.

Do not think I dislike the Austrians. I have great respect and affection for them, and I have seen more of them in familiar intercourse than most Englishmen. One of my best friends in Venice in the winter of 1849-50 was the Artillery officer who had directed the fire on the side of Mestre in 1848. I have never known a nobler person. Brave, kind, and gay—as gentle as a lamb, as playful as a kitten—knightly in courtesy and in all tones of thought—ready at any instant to lay down his life for his country or his Emperor. He was by no means a rare instance either of gentleness or of virtue among the men whom the Liberal portion of our English press represent as only tyrants and barbarians. Radetzky himself was

[1] The year of the Lombard insurrection, when Radetzky, the Austrian field-marshal, defeated the insurgents at Custozza near Verona. Radetzky died in 1858.

one of the kindest of men—his habitual expression was one of overflowing *bonhommie*, or of fatherly regard for the welfare of all around him. All who knew him loved him. In little things his kindness was almost ludicrous. I saw him at Verona run out of his own supper-room and return with a plate of soup in his hand, the waiters (his youngest aides de-camp) not serving his lady guests fast enough to please him ; yet they were nimble enough, as I knew in a race with two of them among the fire-flies by the Mincio, only the evening before. For a long time I regarded the Austrians as the only protection of Italy from utter dissolution (such as that which, I see to-day, it is reported that the Tuscan army has fallen into, left for five weeks to itself), and I should have looked upon them as such still, if the Sardinian Government had not shown itself fit to take their place. And the moment that any Italian Government was able to take their place, the Austrians necessarily become an obstacle to Italian progress, for all their virtues are incomprehensible to the Italians, and useless to them. Unselfish individually, the Austrians are nationally entirely selfish, and in this consists, so far as it is truly alleged against them, their barbarism. These men of whom I have been speaking would have given, any of them, life and fortune unhesitatingly at their Emperor's bidding, but their magnanimity was precisely that of the Highlander or the Indian, incognizant of any principle of action but that of devotion to his chief or nation. All abstract grounds of conscience, all universal and human hopes, were inconceivable by them. Such men are at present capable of no feeling towards Italy but scorn ; their power was like a bituminous cerecloth wrapping her corpse—it saved her from the rottenness of revolution ; but it must be unwound, if the time has come for her resurrection.

I do not know if that time has come, or can come. Italy's true oppression is all her own. Spain is oppressed by the Spaniard, not by the Austrian. Greece needs but to be saved from the Greeks. No French Emperor, however mighty his arm or sound his faith, can give Italy freedom.

"A gift of that which is not to be given
By all the associate powers of earth and heaven."

But the time is come at least to bid her be free, if she has the power of freedom. It is not England, certainly, who should forbid her. I believe that is what it will come to, however—not so much because we are afraid of Napoleon, as because we are jealous of him. But of him and us I have something more to say than there is time for to-night. These good, stupid, affectionate, faithful Germans, too (grand fellows under arms; I never imagined so magnificent a soldiery as 15,000 of them which I made a shift to see, through sand clouds, march past the Prince Frederick William[1] on Saturday morning last). But to hear them fretting and foaming at the French getting into Milan!—they having absolutely no other idea on all this complicated business than that French are fighting Germans! Wrong or right, why or wherefore, matters not a jot to them. French are fighting Germans—somehow, somewhere, for some reason—and beer and Vaterland are in peril, and the English in fault, as we are assuredly, but not on that side, for I believe it to be quite true which a French friend, high in position, says in a letter this morning—"If the English had not sympathized with the Austrians there would have been no war." By way of keeping up the character of incoherence to which I have vowed myself, I may tell you that before that French letter came, I received another from a very sagacious Scotch friend (belonging, as I suppose most Scotch people do, to the class of persons who call themselves "religious"), containing this marvellous enunciation of moral principle, to be acted upon in difficult circumstances, "Mind your own business." It is a serviceable principle enough for men of the world, but a surprising one in the mouth of a person who professes to be a Bible obeyer. For, as far as I remember the tone of that obsolete book, "our own" is precisely the last business which

[1] The Prince Frederick William, now Emperor of Germany (having succeeded his brother Frederick William IV. in January, 1861), was at the date of this letter Regent of Prussia, and Commander-in-Chief of the Prussian forces.

it ever tells us to mind. It tells us often to mind God's business, often to mind other people's business; our own, in any eager or earnest way, not at all. "What thy hand findeth to do." Yes; but in God's fields, not ours. One can imagine the wiser fishermen of the Galilean lake objecting to Peter and Andrew that they were not minding their business, much more the commercial friends of Levi speaking with gentle pity of him about the receipt of Custom. "A bad man of business always—see what has come of it—quite mad at last."

And my astonishing friend went on to say that this was to be our principle of action "where the path was not quite clear" —as if any path ever *was* clear till you got to the end of it, or saw it a long way off; as if all human possibility of path was not among clouds and brambles—often cold, always thorny—misty with roses occasionally, or dim with dew, often also with shadow of Death—misty, more particularly in England just now, with shadow of that commercially and otherwise valuable smoke before spoken of.

However, if the path is not to be seen, it may be felt, or at least tumbled off, without any particular difficulty. This latter course of proceedimg is our probablest, of course.—But I can't write any more to-night. I am, etc.,

J. RUSKIN.

Note to p. 213.—The lines quoted are from Wordsworth's "Poems dedicated to National Independence and Liberty," Part II., Sonnet i. The second line should read, "By all the blended powers of earth and heaven."

[From "The Scotsman," July 23, 1859.]

THE ITALIAN QUESTION.

BERLIN, *June* 15.

You would have had this second letter sooner, had I not lost myself, after despatching the first, in farther consideration of the theory of Non-Intervention, or minding one's own business. What, in logical terms, *is* the theory? If one sees a costermonger wringing his donkey's tail, is it proper to "inter-

vene"? and if one sees an Emperor or a System wringing a nation's neck, is it improper to intervene? Or is the Intervention allowable only in the case of hides, not of souls? for even so, I think you might find among modern Italians many quite as deserving of intervention as a donkey. Or is interference allowable when one person does one wrong to another person, but when two persons do two wrongs to two, or three to three, or a multitude to a multitude; and is there any algebraic work on these square and cube roots of morality wherein I may find how many coadjutors or commissions any given crooked requires to make it straight? Or is it a geographical question; and may one advisably interfere at Berwick but not at Haddington? Or is there any graduated scale of intervention, practicable according to the longitude? I see my way less clearly, because the illustrations of the theory of Non-Intervention are as obscure as its statement. The French are at present happy and prosperous; content with their ruler and themselves; their trade increasing, and their science and art advancing; their feelings towards other nations becoming every day more just. Under which circumstances we English non-interventionalists consider it our duty to use every means in our power of making the ruler suspected by the nation, and the nation unmanageable by the ruler. We call both all manner of names: exhaust every term of impertinence and every method of disturbance; and do our best, in indirect and underhand ways, to bring about revolution, assassination, or any other close of the existing system likely to be satisfactory to Royals [1] in general. This is your non-intervention when a nation is prosperous.

On the other hand the Italian nation is unhappy and unprosperous; its trade annihilated, its arts and sciences retrograde, its nerve and moral sense prostrated together; it is capable only of calling to you for help, and you will not help it. The man you have been calling names, with his unruly colonels, undertakes to help it, and Christian England, with secret hope that, in order to satisfy her spite against the un-

[1] A misprint for "Rogues." See next letter, p. 219

ruly colonels, the French army may be beaten, and the Papacy fully established over the whole of Italy—Christian England, I say, with this spiteful jealousy for one of her motives, and a dim, stupid, short-sighted, sluggish horror of interruption of business for the other, takes, declaratively and ostensibly, this highly Christian position. "Let who will prosper or perish, die or live—let what will be declared or believed—let whatsoever iniquity be done, whatsoever tyranny be triumphant, how many soever of faithful or fiery soldiery be laid in new embankments of dead bodies along those old embankments of Mincio and Brenta; yet will we English, drive our looms, cast up our accounts, and bet on the Derby, in peace and gladness; our business is only therewith; for us there is no book of fate, only ledgers and betting-books; for us there is no call to meddle in far-away business. See ye to it. We wash our hands of it in that sea-foam of ours; surely the English Channel is better than Abana and Pharpar, or than the silver basin which Pilate made use of, and our soap is of the best almond-cake."

I hear the Derby was great this year.[1] I wonder, sometimes, whether anybody has ever calculated, in England, how much taxation the nation pays annually for the maintenance of that great national institution. Observe—what I say of the spirit in which the English bear themselves at present, is founded on what I myself have seen and heard, not on what I read in journals. I read them little at home—here I hardly see them. I have no doubt that in the Liberal papers one might find much mouthing about liberty, as in the Conservative much about order, it being neither liberty nor order which is wanted, but Justice. You may have Freedom of all Abomination, and Order of all Iniquity—if you look for Forms instead of Facts. Look for the facts first—the doing of justice howsoever and by whatsoever forms or informalities. And the forms will come—shapely enough, and sightly enough,

[1] "Magnificent weather and excellent sport made the great people's meeting pass off with great *éclat*." (Annual Register for 1859, p. 73.) The race was won by Sir J. Hawley's Musjid.

afterwards. Yet, perhaps, not till long afterwards. Earnest as I am for the freedom of Italy, no one can hope less from it, for many a year to come. Even those Vaudois, whom you Presbyterians admire so much, have made as yet no great show of fruit out of their religious freedom. I went up from Turin to Torre di Lucerna to look at them last year. I have seldom slept in a dirtier inn, seldom seen peasants' cottages so ill built, and never yet in my life saw anywhere paths so full of nettles. The faces of the people are interesting, and their voices sweet, except in howlings on Sunday evening, which they performed to a very disquieting extent in the street till about half-past ten, waking me afterwards between twelve and one with another "catch," and a dance through the village of the liveliest character. Protestantism is apt sometimes to take a gayer character abroad than with us. Geneva has an especially disreputable look on Sunday evenings, and at Hanover I see the shops are as wide open on Sunday as Saturday; here, however, in Berlin, they shut up as close as you do at Edinburgh. I think the thing that annoyed me most at La Tour, however, was the intense sectarianism of the Protestant dogs. I can make friends generally, fast enough, with any canine or feline creature; but I could make nothing of those evangelical brutes, and there was as much snarling and yelping that afternoon before I got past the farmhouses to the open hill-side, as in any of your Free Church discussions. It contrasted very painfully with the behavior of such Roman Catholic dogs as I happen to know—St. Bernard's and others—who make it their business to entertain strangers. But the hill-side was worth reaching—for though that Lucerna valley is one of the least interesting I ever saw in the Alps, there is a craggy ridge on the north of it which commands a notable view. In about an hour and a half's walking you may get up to the top of a green, saddle-shaped hill, which separates the Lucerna valley from that of Angrogna; if then, turning to the left (westward), you take the steepest way you can find up the hill, another couple of hours will bring you to a cone of stones which the shepherds have built on the ridge, and there you may see all the historical sites of the valley of Angrogna

as in a map—and as much of Monte Viso and Piedmont as clouds will let you. I wish I could draw you a map of Piedmont as I saw it that afternoon. The air was half full of white cumulus clouds, lying nearly level about fifteen hundred feet under the ridge; and through every gap of them a piece of Piedmont with a city or two. Turin, twenty-eight miles away as the bird flies, shows through one cloud-opening like a handful of golden sand in a pool of blue sea.

I've no time to write any more to-day, for I've been to Charlottenburg, out of love for Queen Louise.[1] I can't see a good painting of her anywhere, and they show her tomb by blue light, like the nun scene in *Robert le Diable*. A German woman's face, if beautiful at all, is exquisitely beautiful; but it depends mainly on the thoughtfulness of the eyes, and the bright hair. It rarely depends much upon the nose, which has perhaps a tendency to be—if anything—a little too broadish and flattish—perhaps one might even say in some cases, knobbish. (The Hartz mountains, I see, looking at them from Brunswick, have similar tendencies, less excusably and more decidedly.) So when the eyes are closed—and for the soft hair one has only furrowed marble—and the nose to its natural disadvantages adds that of being seen under blue light, the general effect is disappointing.

Frederick the Great's celebrated statue is at the least ten yards too high[2] from the ground to be of any use; one sees

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[1] The mother of the present Emperor, whose treatment by Napoleon I., and whose own admirable qualities, have won for her the tender and affectionate memory of her people. She died in 1810. Her tomb at Charlottenburg is the work of the German sculptor, Christian Rauch.

[2] The full height of this statue (also the work of Rauch) is, inclusive of the pedestal, somewhat over forty-two feet from the ground. One of the bas-relief tablets which flank the pedestal represents the Apotheosis of the monarch. The visitor to Berlin may recall August Kiss's bronze group, representing the combat of an Amazon with a tiger, on the right side of the Old Museum steps; and Holbein's portrait of George Gyzen, a merchant of London, is No 586 in the picture galleries of the Museum. It is described by Mr. Ruskin in his article on Sir Joshua and Holbein in the Cornhill Magazine of March, 1860, and also in Wornum's Life and Works of Holbein, p. 260 (London, 1867).

nothing but the edges of the cloak he never wore, the soles of his boots, and, in a redundant manner, his horse's tail. Under which vertically is his Apotheosis. In which process he sits upon the back of an eagle, and waves a palm, with appearance of satisfaction to himself, and it is to be hoped no danger of any damage to three stars in the neighborhood.

Kiss's Amazon makes a good grotesque for the side of the Museum steps; it was seen to disadvantage in London. The interior of the gallery is very beautiful in many ways; and Holbein's portrait of George Gyzen is worth coming all the way from England to see only ten minutes. I never saw so noble a piece of work of its kind in my life.

Believe me, etc.,

J. RUSKIN.

[From "The Scotsman," August 6, 1859.]

THE ITALIAN QUESTION.

SCHAFFHAUSEN, *August* 1, 1859.

Letter to the Editor (of "The Scotsman".)

SIR: I have just received the number of the *Scotsman* containing my second letter from Berlin, in which there is rather an awkward misprint of "royals" for "rogues," which must have puzzled some of your readers, no less than the general tone of the letter, written as it was for publication at another time, and as one of a series begun in another journal. I am obliged by the admission of the letter into your columns; and I should have been glad to continue in those columns the series I intended, had not the refusal of this letter by the *Witness*[1] shown me the liability to misapprehen-

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[1] After a careful and repeated search in the columns of the Witness, I am still unable to certainly explain these allusions. It seems, however, that the two preceding letters had been sent to the Witness, which printed the first and refused to print the second. The Scotsman printed both under the titles of Mr. Ruskin on the Italian Question, and Mr. Ruskin on Foreign Politics, whilst it distinguished this third letter by the additional heading of Letter to the Editor. It may be conjectured,

sion under which I should be writing. I had thought that, seeing for these twenty years I have been more or less conversant with Italy and the Italians, a few familiar letters written to a personal friend, at such times as I could win from my own work, might not have been uninteresting to Scottish readers, even though my opinions might occasionally differ sharply from theirs, or be expressed in such rough way as strong opinions must be, when one has no time to polish them into more pleasing presentability. The refusal of the letter by the *Witness* showed me that this was not so; and as I have no leisure to take up the subject methodically, I must leave what I have written in its present imperfect form. It is indeed not mainly a question of time, which I would spend gladly, though to handle the subject of the present state of Italy with any completeness would involve a total abandonment of other work for some weeks. But I feel too deeply in this matter to allow myself to think of it continuously. To me, the state of the modern political mind, which hangs the slaughter of twenty thousand men, and the destinies of twenty myriads of human souls, on the trick that transforms a Ministry, or the chances of an enlarged or diminished interest in trade, is something so horrible that I find no utterance wherewith to characterize it—nor any courage wherewith to face the continued thought of it, unless I had clear expectation of doing good by the effort—expectation which the mere existence of the fact forbids. I leave therefore the words I have written to such work as they may; hoping, indeed, nothing from any words; thankful if a few people here and there unstand and sympathize in the feelings with which they were written; and thankful, if none so sympathize, that I am able

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therefore, that the first two letters were reprinted by the Scotsman from another paper, and that, in receiving the number of the Scotsman containing the second, Mr. Ruskin did not know that it had reprinted the first also. As to the "series begun in another journal," it is, I think, clear that it had not been long continued, as the letter dated "June 15," sent to and refused by it, is spoken of as the "second letter," so that that dated "June 6" must have been the first, as this was unquestionably the last of the series.

at least to claim some share in the sadness, though not in the triumph, of the words of Farinata—

> "Fu' io sol colà, dove sofferto
> Fu per ciascun di torre via Fiorenza,
> Colui che la difese a viso aperto." [1]

I am, etc., J. RUSKIN.

[From "The Liverpool Albion," November 2, 1863.]

THE FOREIGN POLICY OF ENGLAND.[2]

ZURICH, *Oct. 25th,* 1863.

SIR: I beg to acknowledge your favor of the 20th of October. My health does not now admit of my taking part frequently in public business; yet I should have held it a duty to accept the invitation of the directors of the Liverpool Institute, but that, for the time being, my temper is at fault, as well as my health; and I am wholly unable to go on with any of my proper work, owing to the horror and shame with which I regard the political position taken, or rather sunk into, by England in her foreign relations—especially in the affairs of

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[1] "But singly there I stood, when, by consent
Of all, Florence had to the ground been razed,
The one who openly forbade the deed."
CARY'S DANTE—"L'Inferno," x. ll. 90–93.

Farinata degli Uberti was a noble Florentine, and the leader of the Ghibelline faction, when they obtained a signal victory over the Guelfi at Montaperto, near the river Arbia. Machiavelli calls him "a man of exalted soul, and great military talents" (Hist. of Florence, Bk. ii.). Subsequently, when it was proposed that, in order to maintain the ascendency of the Ghibelline faction in Tuscany, Florence should be destroyed, Farinata alone of all the Council opposed the measure, declaring that he had endured every hardship with no other view than that of being able to pass his days in his own country. (See Cary's notes to Canto x.)

[2] This letter was written in answer to a request that Mr. Ruskin would come and preside at the distribution of prizes among the students in the Science and Art Department of the Liverpool Institute, on Saturday, Oct. 31, 1863. It was subsequently read on the occasion of distribution, in accordance with the wish expressed towards the end of the letter.

Italy and Poland.[1] What these matters have to do with Art may not at first be clear, but I can perhaps make it so by a short similitude. Suppose I had been engaged by an English gentleman to give lectures on Art to his son. Matters at first go smoothly, and I am diligent in my definitions of line and color, until, on Sunday morning, at breakfast time, a ticket-of-leave man takes a fancy to murder a girl in the road leading round the lawn, before the house-windows. My patron, hearing the screams, puts down his paper, adjusts his spectacles, slowly apprehends what is going on, and rings the bell for his smallest footman. "John, take my card and compliments to that gentleman outside the hedge, and tell him that his proceedings are abnormal, and, I may add, to me personally—offensive. Had that road passed through my property, I should have felt it my duty to interfere." John takes the card, and returns with it; the ticket-of-leave man finishes his work at his leisure; but, the screams ceasing as he fills the girl's mouth with clay, the English gentleman returns to his muffins, and congratulates himself on having "kept out of that mess." Presently afterwards he sends for me to know if I shall be ready to lecture on Monday. I am somewhat nervous, and answer—I fear rudely—"Sir, your son is a good lad; I hope he will grow to be a man—but, for the present, I cannot teach him anything. I should like, indeed, to teach *you* something, but have no words for the lesson." Which indeed I have not. If I say any words on such matters, people ask me, "Would I have the country go to war? do I know how dreadful a thing war is?" Yes, truly, I know it. I like war as ill as most people—so ill, that I would not spend twenty millions a year in making machines for it, neither my holidays and pocket money in playing at it; yet I would have the country go to war, with haste, in a good quarrel; and, which is perhaps eccentric in me, rather in another's quarrel than in her own. We say of ourselves complacently that we will

[1] See the preceding and the following letter. This one was, it will be seen, written in the year of the last great struggle of Poland against Russia.

not go to war for an idea; but the phrase interpreted means only, that we will go to war for a bale of goods, but not for justice nor for mercy; and I would ask you to favor me so far as to read this letter to the students at your meeting, and say to them that I heartly wish them well; but for the present I am too sad to be of any service to them; that our wars in China and Japan [1] are not likely to furnish good subjects for historical pictures; that "ideas" happen, unfortunately, to be, in Art, the principal things, and that a country which will not fight for its ideas is not likely to have anything worth painting.

I have the honor to be, Sir, your faithful servant,

J. RUSKIN.

The Secretary of the Liverpool Institute.

[From "The Morning Post," July 7, 1864.]

THE POSITION OF DENMARK.

To the Editor of "The Morning Post."

SIR: Will you allow me, in fewest words, to say how deeply I concur in all that is said in that noble letter of Lord Townshend's published in your columns this morning—except only in its last sentence, "It is time to protest." [2] Alas! if protests were of any use, men with hearts and lips would have pro-

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[1] The expedition of the English and French against China was begun in the August of 1860; the war in Japan in the summer of 1863.

[2] Lord Townshend's letter was upon The Circassian Exodus, and pointed out that a committee appointed in 1862 with the object of aiding the tribes of the Caucasus against Russia had failed in obtaining subscriptions, whilst that of 1864, for relieving the sufferers when resistance had become impossible, was more successful. "The few bestowed their sympathy upon the struggle for life; the many reserved theirs for the agonies of death. . . . . To which side, I would ask, do reason and justice incline?" After commenting on the "tardy consolation for an evil which we have neglected to avert," and after remarking that "in the national point of view the case of Poland is an exact counterpart to that of Circassia," the letter thus concluded: "Against such a state of things it is surely time for all who feel as I do to protest."

tested enough by this time. But they are of none, and can be of none. What true words are worth any man's utterance, while it is possible for such debates as last Monday's to be, and two English gentlemen can stand up before the English Commons to quote Virgil at each other, and round sentences, and show their fineness of wrist in their pretty little venomous carte and tierce of personality, while, even as they speak, the everlasting silence is wrapping the brave massacred Danes?[1] I do not know, never shall know, how this is possible. If a cannon shot carried off their usher's head, nay, carried off but his rod's head, at their room door, they would not round their sentences, I fancy, in asking where the shot came from; but because these infinite masses of advancing slaughter are a few hundred miles distant from them, they can speak their stage speeches out in content. Mr. Gladstone must go to places, it seems, before he can feel! Let him go to Alsen, as he went to Naples,[2] and quote Virgil to the Prussian army. The English mind, judging by your leaders, seems divided between the German-cannon nuisance and the Savoyard street-organ nuisance; but was there ever hurdy-gurdy like this dissonance of eternal talk?[3] The Savoyard at least grinds his

[1] The debate (July 4, 1864) was upon the Danish question and the policy of the Government, and took place just after the end of a temporary armistice and the resumption of hostilities by the bombardment of Alsen, in the Dano-Prussian war. Alsen was taken two days after the publication of this letter. The "two English gentlemen" were Mr. Disraeli and Mr. Gladstone (at that time Chancellor of the Exchequer), the latter of whom had quoted the lines from the sixth Æneid (ll. 489–491):

> "At Danaum proceres Agamennoniæque phalanges
> Ut vidêre virum fulgentiaque arma per umbras
> Ingenti tripedare metu."

[2] In 1850, when, being at Naples, Mr. Gladstone interested himself deeply in the cause and miserable condition of the political prisoners, and subsequently addressed two letters on the subject to Lord Aberdeen (see "Letters to Lord Aberdeen on the prisoners of the Neapolitan Government:" Murray, 1851).

[3] The Morning Post of July 6 contained amongst its leaders one on Denmark and Germany, and another on London street-organs, the nuisance of which had been recently brought before the House of Commons by Mr. M. T. Bass (M.P. for Derby).

handle one way, but these classical discords on the double pipe, like Mr. Kinglake's two tunes—past and present [1]—on Savoy and Denmark, need stricter police interference, it seems to me! The cession of Savoy was the peaceful present of a few crags, goats, and goatherds by one king to another; it was also fair pay for fair work, and, in the profoundest sense, no business of ours. Whereupon Mr. Kinglake mewed like a moonstruck cat going to be made a mummy of for Bubastis. But we saw the noble Circassian nation murdered, and never uttered word for them. We saw the noble Polish nation sent to pine in ice, and never struck blow for them. Now the nation of our future Queen calls to us for help in its last agony, and we round sentences and turn our backs. Sir, I have no words for these things, because I have no hope. It is not these squeaking puppets who play before us whom we have to accuse; it is not by cutting the strings of them that we can redeem our deadly error.

We English, as a nation, know not, and care not to know, a single broad or basic principle of human justice. We have only our instincts to guide us. We will hit anybody again who hits us. We will take care of our own families and our own pockets; and we are characterized in our present phase of enlightenment mainly by rage in speculation, lavish expenditure on suspicion or panic, generosity whereon generosity is useless, anxiety for the souls of savages, regardlessness of those of civilized nations, enthusiasm for liberation of blacks, apathy to enslavement of whites, proper horror of regicide, polite respect for populicide, sympathy with those whom we can no longer serve, and reverence for the dead, whom we have ourselves delivered to death.

I am, Sir, your faithful servant,

J. RUSKIN.

DENMARK HILL, *July* 6.

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[1] Mr. Alexander William Kinglake, M.P. for Bridgewater. He spoke at the above-mentioned debate, and had also taken strong interest and part in the cession of Savoy to France by Sardinia in 1860.

[From "The Daily Telegraph," December 20, 1865.]

THE JAMAICA INSURRECTION.

To the Editor of "The Daily Telegraph."

SIR: Will you allow me, in this informal manner, to express what I should have wished to express by signature of the memorial you publish to-day from Huddersfield[2] respecting the Jamaica insurrection, and to thank you for your excellent article of the 15th December on the same subject. I am compelled to make this request, because I see my friend Mr. Thomas Hughes has been abetting the Radical movement against Governor Eyre; and as I employed what little influence I have with the London workmen to aid the return of Mr. Hughes for Lambeth, I may perhaps be thought to concur with him in every line of action he may see fit subsequently to adopt. Permit me, then, once for all, through your widely-read columns, to say that I did what I could towards the return both of Mr. J. S. Mill and of Mr. Hughes,[3] not because I held with them in all their opinions, or even in the main principle of their opinions, but because I knew they had a principle of opinions; that they were honest, thoughtful, and benevolent men; and far worthier to be in Parliament (even though it might be in opposition to many causes I had at heart) than any other candidates I knew. They are my opponents in many things, though I thought better of them both than that they would countenance this fatuous outcry

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[1] The outcry against Governor Eyre for the course he took in suppressing the negro insurrection at Morant Bay, Jamaica, in 1865, is still within the memory of the general public. Mr. Ruskin attended and spoke at the meetings of the Eyre Defence Fund, to which Mr. Carlyle (see note at the end of this letter) gave his warm support. Amongst those who most strongly deprecated the course taken by Governor Eyre were, as this letter implies, Mr. John Stuart Mill (Chairman of the Jamaica Committee) and Mr. Thomas Hughes.

[2] Signed by 273 persons resident in and near Huddersfield. (Daily Telegraph, December 19, 1865.)

[3] Mr. Mill had been recently returned for Westminster, and Mr. Hughes for Lambeth.

against Governor Eyre. But in most directions of thought and action they are for Liberty, and I am for Lordship ; they are Mob's men and I am a King's man. Yes, sir, I am one of those almost forgotten creatures who shrivel under your daily scorn ; I am a "Conservative," and hope forever to be a Conservative in the deepest sense—a Re-former, not a De-former. Not that I like slavery, or object to the emancipation of any kind or number of blacks in due place and time. But I understand something more by "slavery" than either Mr. J. S. Mill or Mr. Hughes ; and believe that white emancipation not only ought to precede, but must by law of all fate precede, black emancipation. I much dislike the slavery, to man, of an African laborer, with a spade on his shoulder ; but I more dislike the slavery, to the devil, of a Calabrian robber with a gun on his shoulder. I dislike the American serf-economy, which separates, occasionally, man and wife ; but I more dislike the English serf-economy, which prevents men from being able to have wives at all. I dislike the slavery which obliges women (if it does) to carry their children over frozen rivers ; but I more dislike the slavery which makes them throw their children into wells. I would willingly hinder the selling of girls on the Gold Coast ; but primarily, if I might, would hinder the selling of them in Mayfair. And, finally, while I regret the need that may exist among savages in a distant island for their governor to do his work sharply and suddenly on them, I far more regret the need among men of race and capacity for the work of governors when they have no governor to give it them. Of all dishonorable and impious captivities of this age, the darkest was that of England to Russia, by which she was compelled to refuse to give Greece a King when Greece besought one from her, and to permit that there should be set on the Acropolis throne no Governor Eyre, nor anything like him, but such a shadow of King as the black fates cast upon a nation for a curse, saying, "Woe to thee, O land, when thy king is a child !" [1]

[1] The present king of Greece was only eighteen years of age when, after the protocol of England, Russia, and France on the preceding day, he accepted, June 6, 1863, the crown of Greece.

Let the men who would now deserve well of England reserve their impeachments, or turn them from those among us who have saved colonies to those who have destroyed nations.

I am, Sir, yours, etc.,

J. RUSKIN.[1]

DENMARK HILL, *Dec.* 19.

(From "The Daily Telegraph," October 7, 1870.)

THE FRANCO-PRUSSIAN WAR.

To the Editor of "The Daily Telegraph."

SIR: My friends ask me why I speak no word about this war, supposing—like vain friends as they are—that I might have some poor influence of intercession for filigree-work, French clocks, and other tender articles of vertù, felt at this moment to be in grave danger.

But, in the first place, I know that the just Fates will reward no intercession, either for human life or chinaware, until their will has been accomplished upon all of us. In the second, I know also that the German armies will spare what they can, and think they ought, without taking advice of me. In the third, I have said long ago—no one listening—the best I had to say on these matters.

But, after your notice to-day of the escape of M. Edouard Frère,[2] whose gentle power I was, I believe, the first to recog-

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[1] It is of interest to remark that Mr. Carlyle, in a letter to Mr. Hamilton Hume, Hon. Sec. of the "Eyre Defence Fund" (published in the Daily Telegraph of September 12, 1866), expressed himself as follows: "The clamor raised against Governor Eyre appears to me to be disgraceful to the good sense of England; . . . penalty and clamor are not the things this Governor merits from any of us, but honor and thanks, and wise imitation. . . . The whole weight of my conviction and good wishes is with you." Mr. Carlyle was, with Sir Roderick Murchison, one of the two vice-presidents of the Defence Committee. (See The History of the Jamaica Case, by G. W. Finlason: London, 1869, p. 369.)

[2] M. Edouard Frère and Mdlle. Rosa Bonheur were allowed to leave Paris and pass the lines of the Prussian army after the blockade of the French capital had been begun. For Mr. Ruskin's early recognition of

nize publicly in England, it is possible that some of your readers may care to look back at what I wrote of modern war four years ago, and to know the aspect it takes to me, now that it has come to pass.

If you will reprint these few following sentences for me from the "Crown of Wild Olive,"[1] I shall be able to-morrow to put what I would add to them briefly enough to claim little space in your columns:

If you have to take away masses of men from all industrial employment—to feed them by the labor of others—to move them, and provide them with destructive machines, varied daily in national rivalship of inventive cost; if you have to ravage the country which you attack—to destroy for a score of future years, its roads, its woods, its cities, and its harbors; and if, finally, having brought masses of men, counted by hundreds of thousands, face to face, you tear those masses to pieces with jagged shot, and leave fragments of living creatures, countlessly beyond all help of surgery, to starve and parch, through days of torture, down into clots of clay—what book of accounts shall record the cost of your work—what book of judgment sentence the guilt of it?

That, I say, is *modern* war—scientific war—chemical and mechanical war—worse even than the savage's poisoned arrow. And yet you will tell me, perhaps, that any other war than this is impossible now. It may be so; the progress of science cannot, perhaps, be otherwise registered than by new facilities

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M. Frère's power, see the Academy Notes, No. II. (1856), p. 47, where some "cottage studies" are spoken of as "quite unequalled in sincerity and truth of conception, though somewhat dimly painted;"—No. III. (1857), p. 58, where his pictures are said to "unite the depth of Wordsworth, the grace of Reynolds, and the holiness of Angelico;"—and No. IV. (1858), p. 33, where this last expression of praise is emphasized and at some length explained.

[1] See for the first two paragraphs of extracts following pp. 170, 171 of the original, and §§ 102–3 of the 1873 edition of the Crown of Wild Olive; for the third paragraph, pp. 116–118, and § 74; and for the last two paragraphs, pp. 186, 187, and §§ 113, 114, respectively, of those two editions.

of destruction; and the brotherly love of our enlarging Christianity be only proved by multiplication of murder.

But the wonder has always been great to me that heroism has never been supposed consistent with the practice of supplying people with food, or clothes, but only with that of quartering one's self upon them for food, and stripping them of their clothes. Spoiling of armor is an heroic deed in all ages; but the selling of clothes, old or new, has never taken any color of magnanimity. Yet one does not see why feeding the hungry and clothing the naked should ever become base businesses even when engaged in on a large scale. If one could contrive to attach the notion of conquest to *them* anyhow? so that, supposing there were anywhere an obstinate race, who refused to be comforted, one might take some pride in giving them compulsory comfort, and, as it were, "occupying a country" with one's gifts, instead of one's armies? If one could only consider it as much a victory to get a barren field sown as to an eared field stripped; and contend who should build villages, instead of who should "carry" them? Are not all forms of heroism conceivable in doing these serviceable deeds? You doubt who is strongest? It might be ascertained by push of spade as well as push of sword. Who is wisest? There are witty things to be thought of in planning other business than campaigns. Who is bravest? There are always the elements to fight with, stronger than men; and nearly as merciless.

And, then, observe farther, this true power, the power of saving, depends neither on multitude of men, nor on extent of territory. We are continually assuming that nations become strong according to their numbers. They indeed become so, if those numbers can be made of one mind. But how are you sure you can stay them in one mind, and keep them from having north and south minds? Grant them unanimous, how know you they will be unanimous in right? If they are unanimous in wrong, the more they are, essentially the weaker they are. Or, suppose that they can neither be of one mind, nor of two minds, but can only be of *no* mind? Suppose they are a mere helpless mob, tottering into precipitant catastrophe,

like a wagon-load of stones when the wheel comes off? Dangerous enough for their neighbors certainly, but not "powerful."

Neither does strength depend on extent of territory, any more than upon number of population. Take up your masses, put the cluster of the British Isles beside the mass of South America, and then consider whether any race of men need consider how much ground they stand upon. The strength is in the men, and in their unity and virtue, not in their standing-room. A little group of wise hearts is better than a wilderness full of fools; and only that nation gains true territory which gains itself.

I am, Sir, your faithful servant,

J. RUSKIN.

DENMARK HILL, S.E., *Oct. 6th.*

[From "The Daily Telegraph," October 8, 1870.]

THE FRANCO-PRUSSIAN WAR.

To the Editor of "The Daily Telegraph."

SIR: As I am always blamed if I approach my subject on any but its picturesque side, it is well for me that in to-day's *Times* I find it announced that at Strasburg the Picture Gallery—with the pictures in it?—the Library—with the books in it?—and the Theatre, with certainly two hundred persons in it, have been burnt to the ground under an auxiliary cannonade, the flames at night being "a tempting target." It is true that in your columns I find the consolatory news that the Parisians are repairing those losses by casting a bronze Strasburg;[1] but if, as a poor art professor, I may venture an opinion, I would fain suggest to them that if their own picture gallery, with the pictures and bits of marble in it—Venus

[1] The Daily Telegraph of Oct. 7 contained amongst its Paris news that of the decision of the Government of National Defence to cast a statue of the city of Strasburg in bronze, in memory of its "heroic resistance to the enemy during a murderous siege of fifty days."

of Melos and the like—and their own Library—Royal, Impériale, Nationale, or whatever they now call it—should presently become tempting targets also by the light of their own flames, the casting of a bronze Paris, in even the most imposing of attitudes, will scarcely redeem their loss, were it but to the admiring eyes of Paris itself.

There is yet another letter in the *Times*,[1] of more importance than the one from Strasburg. It is headed, "The Difficulties of Neutrality," dated Bonn, and anticipates part of what I was going to say; for the rest, the lessons of the war, as I read them, are briefly these.

As to its cause, neither the French nation nor their Emperor brought on war by any present will of their own. Neither of them were capable of a will at all—far less of executing it. The nation has since declared, by submission, with acclaim, to a change of Government which for the time renders all political treaty with it practically impossible, that during the last twenty years it has been deceived or subdued into obedience to a man for whom it had no respect, and who had no hereditary claim to the throne. What "will" or responsibility of action can be expected from a nation which confesses this of itself? On the other hand, the Emperor, be his motives never so selfish, could only have hoped to save his dynasty by compliance with the passions of a populace which he knew would overthrow it in the first hour of their mortification. It is in these vain passions and the falsehoods on which they have fed that we must look for the deep roots of all this misery. Since the days of the First Empire, no cottage in France has been without its Napoleonic picture and legend, fostering one and the same faith in the heart of every

[1] This letter was signed "W. C. P.," who, after stating himself to be an English resident in Germany, proceeded to lament the changed position of England in the opinion of foreign nations, and especially in that of the Germans, who no longer spoke of her, as formerly, "with affectionate admiration or even envious respect." "And I must confess," concluded the letter, "that I find it difficult to answer them; for it seems to me that we have already good reason to say, in reference to the present struggle, 'All is lost save money.'"—Times, October 7, 1870.

peasant boy, that there is no glory but in battle; and since the founding of the Second Empire no street of any city has risen into its foolish magnificence without collateral proclamation that there was no pleasure but in vice.

Then, secondly, for the actual question of the war: it is a simple and testing struggle between pure Republicanism on the one side, expressed in the most exquisite, finished, and exemplary anarchy, yet achieved under—earth—and one of the truest Monarchies and schools of honor and obedience yet organized under heaven. And the secret of its strength, we have to note, is essentially pacific; for all the wars of the Great Friedrich would have passed away resultless—as great wars usually do—had it not been for this pregnant fact at the end of them: "All his artillery horses are parted into plough-teams, and given to those who otherwise can get none" (Carlyle, vol. vi., first edition, p. 350)—that 21st book on the repair of Prussia being of extant literature the most important piece for us to read and digest in these days of "raising the poor without gifts"—never asking who first let them fall—and of turning workmen out of dockyards, without any consciousness that, of all the stores in the yard, the men were exactly the most precious. You expressed, Sir, in your article on the loss of the Captain,[1] a feeling common, I suppose, for once, to all of us, that the principal loss was not the iron of the ship, but the five hundred men in her. Perhaps, had she been of gold instead of iron plate, public mourning might have inclined itself to the side of the metal. But how if the whole British public should be itself at this instant afloat in a captainless Captain, built of somewhat dirty yet substantial gold, and in extremest peril of turning bottom upwards? Which will be the end, indeed, unless the said public quickly perceive that their hope must be, not in docks nor ships, but in men. They, and they only, are our guarantee for territory. Prussia herself seems as simple as the rest of us in her talk of

[1] The turret ship Captain foundered off Cape Finisterre on September 7, 1870. For the articles alluded to, see the Daily Telegraph of September 12 and following days.

"guarantees." Alsace and Lorraine, if dishonestly come by, may be honestly retaken ; but if for "guarantee," why these only? Why not Burgundy and Anjou—Auvergne and the Limousin? Let France lose what she may, if she can but find a Charles and Roland among her children, she will recover her empire, though she had been beaten back to the Brêche ; and if she find them not Germany has all the guarantee she needs in her own name, and in her own right hand.

Let her look to it, now, that her fame be not sullied. She is pressing her victory too far—dangerously far, as uselessly. The Nemesis of battle may indeed be near her ; greater glory she cannot win by the taking of Paris, nor the overrunning of provinces—she only prolongs suffering, redoubles death, extends loss, incalculable and irremediable. But let her now give unconditional armistice, and offer terms that France can accept with honor, and she will bear such rank among the nations as never yet shone on Christian history.

For us, we ought to help France now, if we ever did anything, but of course there remains for us only neutrality—selling of coke, and silence (if we have grace enough left to keep it). I have only broken mine to say that I am ashamed to speak as being one of a nation regardless of its honor alike in trade and policy ; poor, yet not careful to keep even the treasure of probity—and rich, without being able to afford itself the luxury of courage.

I am, Sir, your faithful servant,

Oct. 7. J. RUSKIN.

[From "Fraser's Magazine," July, 1876, pp. 121–123.]

MODERN WARFARE

To the Editor of "Fraser's Magazine."

SIR : The article on modern warfare in your last June number [1] contains statements of so great importance to public interests, that I do not hesitate to ask you to spare me space for

[1] Remarks on Modern Warfare. By a Military Officer. The article was signed "P. S. C."

a question or two respecting it, which by answering, your contributor may make the facts he has brought forward more valuable for practical issues.

The statistics[1] given in the second column of page 695, on which P. S. C. rests his "incontestable" conclusion that "battles are less sanguinary than they were," are incomplete in this vital respect, that they furnish us only with the proportion, and not with the total number, of combatants slain. A barricade fight between a mob of rioters a thousand strong and a battery of artillery, in which fifty reformers get shot, is not "less sanguinary" than a street quarrel between three topers, of whom one gets knocked on the head with a pewter pot: though no more than the twentieth part of the forces on one side fall in the first case, and a third of the total forces engaged, in the second. Nor could it be proved by the exhibition of these proportions of loss, that the substitution of explosive shells, as offensive weapons, for pewter pots, rendered wounds less painful, or war more humane.

Now, the practical difference between ancient and modern war, as carried on by civilized nations, is, broadly, of this kind. Formerly, the persons who had quarrelled settled their differences by the strength of their own arms, at the head of their retainers, with comparatively inexpensive weapons such as they could conveniently wield: weapons which they had paid for out of their own pockets, and with which they struck only the people they meant to strike: while, nowadays, persons who quarrel fight at a distance, with mechanical apparatus, for the manufacture of which they have taxed the public, and which will kill anybody who happens to be in the way; gathering at the same time, to put into the way of them, as large a quantity of senseless and innocent mob as can be beguiled, or compelled, to the slaughter. So that, in the words of your contributor, "Modern armies are not now small fractions of the population whence they are drawn; they represent—in fact are—whole nations in arms." I have only to correct this somewhat vague and rhetorical statement by pointing out that the

[1] See the tables given in this letter (p. 236).

persons in arms, led out for mutual destruction, are by no means "the whole nation" on either side, but only the individuals of it who are able-bodied, honest, and brave, selected to be shot, from among its invalids, rogues, and cowards.

The deficiencies in your contributor's evidence as to the totality of loss do not, however, invalidate his conclusion that, out of given numbers engaged, the mitrailleuse kills fewer than the musket.[1] It is, nevertheless, a very startling conclusion, and one not to be accepted without closer examination of the statistics on which it is based. I will, therefore, tabulate them in a simpler form, which the eye can catch easily, omitting only one or two instances which add nothing to the force of the evidence.

In the six under-named battles of bygone times, there fell, according to your contributor's estimate, out of the total combatants—

At Austerlitz	1/7
Jena	1/6
Waterloo	1/5
Marengo	1/4
Salamanca	1/3
Eylau	1/2½

while in the under-named five recent battles the proportion of loss was—

At Königgratz	1/15
Gravelotte	1/12
Solferino	1/11
Worth	1/11
Sedan	1/10

Now, there is a very important difference in the character of the battles named in these two lists. Every one of the first six was decisive, and both sides knew that it must be so when the engagement began, and did their best to win. But Königgratz was only decisive by sudden and appalling demonstration of the power of a new weapon. Solferino was only half fought,

* "The proportion of killed and wounded," wrote P. S. C., "was far greater with the old-fashioned weapons than it is at the present day."

and not followed up because the French Emperor had exhausted his *corps d'élite* at Magenta, and could not (or, at least, so it is reported) depend on his troops of the line. Worth was an experiment; Sedan a discouraged ruin; Gravelotte was, I believe, well contested, but I do not know on what extent of the line, and we have no real evidence as to the power of modern mechanics for death, until the proportions are calculated, not from the numbers engaged, but from those under fire for equal times. Now, in all the upper list of battles, probably every man of both armies was under fire, and some of the regiments under fire for half the day; while in the lower list of battles, only fragments of the line were hotly engaged, and the dispute on any point reaching its intensity would be ended in half an hour.

That the close of contest is so rapid may indeed be one of the conditions of improvement in our military system alleged by your correspondent; and the statistics he has brought forward do indeed clearly prove one of two things—either that modern weapons do not kill, or that modern soldiers do not fight as effectually as in old times. I do not know if this is thought a desirable change in military circles; but I, as a poor civilian, beg to express my strong objection to being taxed six times over what I used to be, either for the equipment of soldiers who rarely fight, or the manufacture of weapons which rarely kill. It may be perfectly true that our last cruise on the Baltic was "less sanguinary" than that which concluded in Copenhagen. But we shook hands with the Danes after fighting them, and the differences between us were ended: while our expensive contemplation of the defences of Cronstadt leaves us still in daily dread of an inspection by the Russian of those of Calcutta.

It is true that the ingenuity of our inventors is far from being exhausted, and that in a few years more we may be able to destroy a regiment round a corner and bombard a fleet over the horizon; but I believe the effective result of these crowning scientific successes will only be to confirm the at present partial impression on the minds of military and naval officers, that their duty is rather to take care of their weapons than to use

them. "England will expect" of her generals and admirals to maintain a dignified moral position as far as possible out of the enemy's sight: and in a perfectly scientific era of seamanship we shall see two adverse fleets affected by a constant law of mutual repulsion at distances of two or three hundred miles; while in either squadron, an occasional collision between the leading ships, or inexplicable foundering of the last improved ones, will make these prudential manœuvres on the whole as destructive of the force, and about ten times more costly to the pocket, of the nation, than the ancient, and, perhaps, more honorable tactics of poorly-armed pugnacity.

There is, however, one point touched upon in P. S. C.'s letter, to me the most interesting of all, with respect to which the data for accurate comparison of our former and present systems are especially desirable, though it never seems to have occurred to your correspondent to collect them—the estimates, namely, of the relative destruction of civil property.

Of wilful destruction, I most thankfully acknowledge the cessation in Christian warfare; and in the great change between the day of the sack of Magdeburg and that of the march into Paris, recognize a true sign of the approach of the reign of national peace. But of inevitable destruction—of loss inflicted on the peasant by the merely imperative requirements and operations of contending armies—it will materially hasten the advent of such peace, if we ascertain the increasing pressure during our nominally mollified and merciful war. The agricultural losses sustained by France in one year are estimated by your correspondent at one hundred and seventy millions of pounds. Let him add to this sum the agricultural loss necessitated in the same year throughout Germany, through the withdrawal of capital from productive industry, for the maintenance of her armies; and of labour from it by their composition; and, for third item, add the total cost of weapons, horses, and ammunition on both sides; and let him then inform us whether the cost, thus summed, of a year's actual war between two European States, is supposed by military authorities to be fairly representative of that which the settlement of political dispute between any two such Powers,

with modern instruments of battle, will on an average, in future, involve. If so, I will only venture further to suggest that the nations minded thus to try their quarrel should at least raise the stakes for their match before they make the ring, instead of drawing bills for them upon futurity. For that the money-lenders whose pockets are filled, while everybody else's are emptied, by recent military finance, should occultly exercise irresistible influence, not only on the development of our—according to your contributor—daily more harmless armaments, but also on the deliberation of Cabinets, and passions of the populace, is inevitable under present circumstances ; and the exercise of such influence, however advantageous to contractors and projectors, can scarcely be held consistent either with the honor of a Senate or the safety of a State. I am, Sir,

Your faithful servant,

J. Ruskin.

P. S.—I wish I could get a broad approximate estimate of the expenditure in money, and loss of men by France and Prussia in the respective years of Jena and Sedan, and by France and Austria in the respective years of Arcola and Solferino.

LETTERS ON POLITICAL ECONOMY.

[From "The Times," October 8, 1863.]

THE DEPRECIATION OF GOLD.

To the Editor of "The Times."

SIR: Being out of the way of my letters, I did not, till now, see your excellent article of the 23d September on the depreciation of gold.[1] Will you allow me, thus late, a very few words in confirmation of your statement of the insufficiency of the evidence hitherto offered on that subject?

The market value of "a pound" depends less on the supply of gold than on the extravagance or economy of the persons holding documentary currency (that is to say, claim to goods). Suppose, for instance, that I hold stock to the value of £500 a year;—if I live on a hundred a year, and lay by four hundred, I (for the time) keep down the prices of all goods to the distributed amount of £400 a year, or, in other words, neutralize the effect on the market of 400 pounds in gold imported annually from Australia. If, instead of laying by this sum in paper, I choose to throw it into bullion (whether gold-plate or coin does not matter), I not only keep down the price of goods, but raise the price of gold as a commodity, and neutralize 800 pounds' worth of imported gold. But if I annually spend my entire 500 (unproductively) I annually raise the price of goods by that amount, and neutralize a correspondent diminution in the supply of gold. If I spend my 500 productively, that is to say, so as to produce as much as, or more than I consume, I either leave the market as I find it, or by the excess of production increase the value of gold.

[1] See one of the leading articles in The Times of Sept. 23, 1863, upon the then panic as to the depreciation of gold, excited by the considerable fresh discoveries of the precious metal in California and Australia.

Similarly, whatever I lay by will, as it is ultimately spent by my successors, productively or unproductively, in that degree (*cæteris paribus*) increase or lower the value of gold. These agencies of daily economy have so much more power over the market than the supply from the mine that no statistics of which we are yet in possession are (at least in their existing form) sufficient to prove the dependence of any given phenomena of the market on the rate of metallic supply. The destruction of property in the American war and our European amusements in the manufacture of monster guns and steel "backings" lower the value of money far more surely and fatally than an increased supply of bullion, for the latter may very possibly excite parallel force of productive industry.

But the lowered value of money is often (and this is a very curious case of economical back current) indicated, not so much by a rise in the price of goods, as by a fall in that of labor. The household lives as comfortably as it did on a hundred a year, but the master has to work half as hard again to get it. This increase of toil is to an active nation often a kind of play; men go into it as into a violent game; fathers of families die quicker, and the gates of orphan asylums are choked with applicants; distress and crime spread and fester through a thousand silent channels; but there is no commercial or elementary convulsion; no chasm opens into the abyss through the London clay; no gilded victim is asked of the Guards: the Stock-Exchange falls into no hysterics; and the old lady of Threadneedle Street does not so much as ask for "My fan, Peter." I am, Sir, your obedient servant,

J. Ruskin.

Chamounix, *Oct.* 2.

[From "The Daily Telegraph," October 28, 1864.]

THE LAW OF SUPPLY AND DEMAND.

To the Editor of "The Daily Telegraph."

Sir: In your valuable article of to-day on the strike of the colliers, while you lay down the true and just law[1] respect-

[1] The strike was amongst the South Staffordshire colliers: the law laid down in the article that of free trade.

ing all such combinations, you take your stand, in the outset, on a maxim of political economy, which, however trite, stands yet—if I am not deceived—in need of much examination and qualification. "Labor," you say, like every other vendible commodity, "depends for its value on the relation of supply to demand." But, Sir, might it not be asked by any simple and practical person, who had heard this assertion for the first time—as I hope all practical persons will some day hear it for the last time—"Yes; but what does demand depend upon, and what does supply depend upon?" If, for instance, all death-beds came to resemble that so forcibly depicted in your next following article, and in consequence, the demand for gin were unlimitedly increased towards the close of human life,[1] would this demand necessitate, or indicate, a relative increase in the "value" of gin as a necessary article of national wealth, and liquid foundation of national prosperity? Or might we not advisably make some steady and generally understood distinction between the terms "value" and "price," and determine at once whether there be, or be not, such a thing as intrinsic "value" or goodness in some things, and as intrinsic unvalue or badness in other things; and as value extrinsic, or according to use, in all things? and whether a demand for intrinsically good things, and a corresponding knowledge of their use, be not conditions likely, on the whole, to tend towards national wealth? and whether a demand for intrinsically bad things, and relative experience in their use, be not conditions likely to lead to quite the reverse of national wealth, in exact proportion to the facility of the supply of the said bad things? I should be entirely grateful to you, Sir, or to any of your correspondents, if you or they would answer these short questions clearly for me.

I am, Sir, yours, etc.,

DENMARK HILL, *Oct.* 26. J. RUSKIN.[2]

[1] Upon the then recent and miserable death of an Irish gentleman, who had been an habitual hard-drinker.

[2] To this letter an answer (Daily Telegraph, October 29) was attempted by "Economist," writing from "Lloyds, Oct. 28," stating that "Value in political economy means exchangeable value, not intrinsic value." The rest of his letter is given in Mr. Ruskin's reply to it.

[From "The Daily Telegraph," October 31, 1864.]

THE LAW OF SUPPLY AND DEMAND.

To the Editor of "The Daily Telegraph."

SIR: I am grateful to your correspondent "Economist" for trying his hand on me, and will be a docile pupil; but I hope his hand is not quite untried hitherto, for it would waste your space, and my time, and your readers' patience, if he taught me what I had afterwards to unlearn. But I think none of these will be wasted if he answers my questions clearly; there are, I am sure, many innocent persons who, like myself, will be glad of the information.

1. He tells me, then, in the outset, "The intrinsic value of commodities is a question outside political economy."

Is that an axiom for all political economists? and may I put it down for future reference? I particularly wish to be assured of this.

2. Assuming, for the present, that I may so set it down, and that exchangeable value is the only subject of politico-economical inquiry, I proceed to my informant's following statement:

"The" (question) "of intrinsic value belongs to the domain of philosophy, morals, or statecraft. The intrinsic value of anything depends on its qualities; the exchangeable value depends on how much there is of it, and how much people want it."

(This "want" of it never, of course, in anywise depending on its qualities.)

Μανθανω. Accordingly, in that ancient and rashly-speculative adage, "Venture a sprat to catch a herring," it is only assumed that people will always want herrings rather than sprats, and that there will always be fewer of them. No reference is involved, according to economists, to the relative sizes of a sprat and herring.

Farther: Were a fashionable doctor to write an essay on sprats, and increase their display at West-end tables to that extent that unseasonable sprats became worth a guinea a head, while herrings remained at the old nursery rate of one and a half for three-halfpence, would my "recognition" of the value

of sprats in paying a guinea for one enable me to dine off it better than I should off that mysterious eleven-pennyworth of herring? Or to take a more elevated instance. There is now on my room wall a water-color drawing, which was once bought for £30, and for which any dealer would to-morrow give me £300. The drawing is intrinsically worth about one-tenth of what it was when bought for £30, the sky having faded out of it, and many colors having changed elsewhere. But men's minds have changed like the colors, and Lord A. or Sir John B. are now ready to give me £300 instead of £30 for it.

Now, I want to know what it matters to "Economist," or to the Economical Society he (as I understand) represents, or to the British nation generally, whether Lord A. has the bit of colored paper and I the £300, or Lord A. the £300 and I the bit of paper. The pounds are there, and the paper is there: what does it nationally matter which of us have which?

Farther: What does it nationally matter whether Lord A. gives me £30 or £300 on the exchange? (Mind, I do not say it does not matter—I only want "Economist" to tell me if it does, and how it does.) In one case my lord has £270 more to spend; in the other I have. What does it signify which of us has?

Farther: To us, the exchangers, of what use is "Economist's" information that the rate of exchange depends on the "demand and supply" of colored paper and pounds? No ghost need come from the grave to tell us that. But if any economical ghost would tell my lord how to get more pounds, or me how to get more drawings, it might be to the purpose.

But yet farther, passing from specialties to generals:

Let the entire property of the nation be enumerated in the several articles of which it consists—*a*, *b*, *c*, *d*, etc.; we will say only three, for convenience sake. Then all the national property consists of $a+b+c$.

I ask, first, what *a* is worth.

"Economist" answers (suppose) 2 *b*.

I ask, next, what *b* is worth.

"Economist" answers (suppose) 3 *c*.

I ask, next, what *c* is worth.

"Economist" answers— $\frac{a}{b}$.

Many thanks. That is certainly Cocker's view of it. I ask, finally, What is it *all* worth?

"Economist" answers, $1\frac{2}{3}$ *a*, or $3\frac{1}{3}$ *b*, or 10 *c*.

Thanks again. But now, intrinsic value not being in "Economist's" domain, but—if I chance to be a philosopher --in mine, I may any day discover any given intrinsic value to belong to any one of these articles.

Suppose I find, for instance, the value of *c* to be intrinsically zero, then the entire national property = 10 *c* = intrinsically 0.

Shall I be justified in this conclusion?

3. In relation to the question of strikes, the difficulty, you told me yourself, Mr. Editor [1] (and doubtless "Economist" will tell me also), depends simply on supply and demand: that is to say, on an under-supply of wages and an over-supply of laborers. Profoundest thanks again; but I, poor blundering, thick-headed collier, feel disposed further to ask, "On what do this underness and overness of supply depend?" Have they any remote connection with marriage, or with improvidence, or with avarice, or with accumulativeness, or any other human weaknesses out of the ken of political economy? And, whatever they arise from, how are they to be dealt with? It appears to me, poor simple collier, that the shortest way of dealing with this "darned" supply of laborers will be by knocking some of them down, or otherwise disabling them for the present. Why is this mode of regulating the supply interdicted to me? and what have Economists to do with the morality of any proceeding whatever? and, in the name of economy generally, what else can I do? [2]

I am, Sir, yours, etc.,

DENMARK HILL, *Oct.* 29. [Monday.] J. RUSKIN.

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[1] See *ante*, p. 241.

[2] "Economist" does not seem to have continued his argument. A reply to this letter was however attempted by "John Plummer," writing from Kettering, and dealing with the over-supply of laborers and under-supply of wages, and Mr. Ruskin's possible views on the matter. The next letter ended the correspondence.

[From "The Daily Telegraph," November 3, 1864.]

THE LAW OF SUPPLY AND DEMAND.

To the Editor of "The Daily Telegraph."

SIR: Having, unfortunately, occupation enough in my own business for all hours of the day, I cannot undertake to reply to the general correspondence which might, in large supply to my limited demand, propose itself in your columns. If my first respondent, "Economist," or any other person learned in his science, will give me direct answers to the direct questions asked in my Monday's letter, I may, with your permission, follow the points at issue farther; if not, I will trouble you no more. Your correspondent of to-day, Mr. Plummer, may ascertain whether I confuse the terms "value" and "price" by reference to the bottom of the second column in page 787 of *Fraser's Magazine* for June, 1862. Of my opinions respecting the treatment of the working classes he knows nothing, and can guess nothing.[1]

I am, Sir, yours, etc.,

DENMARK HILL, *Nov.* 2. J. RUSKIN.

[From "The Scotsman," November 10, 1873.]

MR. RUSKIN AND PROFESSOR HODGSON.

CORPUS CHRISTI COLLEGE, OXFORD,
Nov. 8th, 1873.

To the Editor of "The Scotsman."

SIR: In your impression of the 6th inst. I find a report of a lecture delivered by Professor Hodgson in the University of Edinburgh on the subject of "Supply and Demand," in which the Professor speaks of my "denunciations" of the principles he had expounded. Permit me, in a matter respecting which accuracy is of more importance to others than to myself, to correct the Professor's expression. I have never "denounced" the principles expounded by the Professor. I have simply

[1] In the Essays on Political Economy, since reprinted as Munera Pulveris. See p. 24, § 12 of that book, where the passage is printed in italics: "The reader must, by anticipation, be warned against confusing value with cost, or with price. Value is the life-giving power of anything; cost, the quantity of labor required to produce it; price, the quantity of labor which its possessor will take in exchange for it."

stated that no such principles exist; that no "law of supply and demand," as expounded by Professor Hodgson and modern economists, ever did or can exist.

Professor Hodgson, as reported in your columns, states that "demand regulates supply." He does not appear to entertain the incomparably more important economical question, "What regulates demand?" But without pressing upon him that first question of all, I am content absolutely to contradict and to challenge him before the University of Edinburgh to maintain his statement that "demand regulates supply," and together with it (if he has ventured to advance it) the correlative proposition, "supply regulates demand."

A. Demand does not regulate supply.

For instance—there is at this moment a larger demand for champagne wine in England and Scotland than there was ten years ago; and a much more limited supply of champagne wine.

B. Supply does not regulate demand.

For instance I can name many districts in Scotland where the supply of pure water is larger than in other namable localities, but where the inhabitants drink less water and more whiskey than in other namable localities.

I do not therefore denounce the so-called law of supply and demand, but I absolutely deny the existence of such law; and I do in the very strongest terms denounce the assertion of the existence of such a law before the University of Edinburgh as disgraceful both to its assertor and to the University, unless immediate steps be taken to define, in scientific terms, the limitations under which such statement is to be understood.

I am, etc.,

JOHN RUSKIN.[1]

[From the "Scotsman," November 18, 1873.]

MR. RUSKIN AND PROFESSOR HODGSON.

OXFORD, *November* 15, 1873.

To the Editor of "The Scotsman."

SIR: For Professor Hodgson's "undue encroachments on your space and his own time," I leave you to answer to your

[1] To this letter Professor Hodgson replied by one printed in the Scotsman of November 14.

readers, and the Professor to console his class. To his criticisms on my language and temper I bow, their defence being irrelevant to the matter in hand. Of his harmless confusion of the word "correlative" with the word "consequent" I take no notice; and his promise of a sifting examination of my economic teaching I anticipate with grateful awe.[1]

But there is one sentence in his letter of real significance, and to that alone I reply. The Professor ventured (he says) to suggest that possibly I with others "believe that economists confused existing demand with wise and beneficial demand, and existing supply with wise and beneficial supply.

I do believe this. I have written all my books on political economy in such belief. And the entire gist of them is the assertion that a real law of relation holds between the non-existent wise demand and the non-existent beneficial supply, but that no real law of relation holds between the existent foolish demand and the existent mischievous supply.

That is to say (to follow Professor Hodgson with greater accuracy into his lunar illustrations), if you ask for the moon, it does not follow that you will get it; nor is your satisfaction more secure if you ask for sixpence from a Poor-Law guardian; but if you limit your demand to an honest penny, and endeavor to turn it by honest work, the divine law of supply will, in the plurality of cases, answer that rational and therefore divine demand.

Now, Professor Hodgson's statement, as reported in your columns, was that "demand regulates supply." If his assertion, in his lecture, was the qualified one, or that "wise demand regulates beneficial supply," your reporter is much to be blamed, the Professor's class profoundly to be congratulated, and this correspondence is at an end; while I look forward with deepest interest to the necessary elucidations by the Professor of the nature of wisdom and benefit; neither of these ideas having been yet familiar ones in common economical treatises. But I wrote under the impression that the Professor

[1] "I hereby promise Mr. Ruskin that ere very many months are over he shall have in print a sifting examination of his economic teaching." I do not find, however, that Professor Hodgson fulfilled his promies.

dealt hitherto, as it has been the boast of economists to deal, with things existent, and not theoretical (and assuredly the practical men of this country expect their children to be instructed by him in the laws which govern existing things); and it is therefore only in the name of your practical readers that I challenged him, and to-day repeat my challenge, in terms from which I trust he will not again attempt to escape by circumambient criticism of my works,[1] to define, in scientific terms, the limits under which his general statement that "supply regulates demand" is to be understood. That is to say, whether he, as Professor of Political Economy, is about to explain the relations (A) of rational and satiable demand with beneficial and benevolently-directed supply; or (B) of irrational and insatiable demand with mischievous and malevolently-directed supply; or (C) of a demand of which he cannot explain the character with a supply of which he cannot predict the consequence?

I am, etc.,

J. RUSKIN.

[From "The Pall Mall Gazette," April 18, 1865.]

STRIKES v. ARBITRATION.

To the Editor of "The Pall Mall Gazette."

SIR: I read your *Gazette* so attentively that I am always falling into arrears, and have only to-day arrived at your last week's articles on strikes, arbitration, etc., which afford me the greatest satisfaction, but nevertheless embarrass me somewhat. Will you permit me to ask for a word or two of further elucidation?

I am an entirely selfish person, and having the means of indulging myself (in moderation), should, I believe, have led a comfortable life, had it not been for occasional fits and twinges of conscience, to which I inherit some family predisposition, and from which I suffer great uneasiness in cloudy weather.

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[1] Professor Hodgson's letter had quoted, with criticism, several passages from Fors Clavigera, Munera Pulveris, and Time and Tide.

Articles like yours of Wednesday,[1] on the proper attention to one's own interests, are very comforting and helpful to me; but, as I said, there are yet some points in them I do not understand.

Of course it is right to arrange all one's business with reference to one's own interest; but what will the practical difference be ultimately between such arrangement and the old and simple conscientious one? In those bygone days, I remember, one endeavored, with such rough estimate as could be quickly made, to give one's Roland for one's Oliver; if a man did you a service, you tried in return to do as much for him; if he broke your head, you broke his, shook hands, and were both the better for it. Contrariwise, on this modern principle of self-interest, I understand very well that if a man does me a service, I am always to do the least I can in return for it; but I don't see how I am always to get more out of him than he gets out of me. I dislike any references to abstract justice as much as you do, but I cannot see my way to keeping this injustice always in my own favor; and if I cannot, it seems to me the matter may as well be settled at first, as it must come to be settled at last, in that disagreeably just way.

Thus, for instance, in producing a piece of iron for the market, one man digs it, another smelts it, another puddles it, and I sell it. We get so much between us four; and I suppose your conscientious people would say that the division of the pay should have some reference to the hardness of the work, and the time spent in it. It is true that by encouraging the diggers and puddlers to spend all they get in drink, and by

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[1] The articles alluded to were, one upon "Strikes and Arbitration Courts," in the Gazette of Wednesday, the 12th, and one on "The Times on Trade Arbitration," in the Gazette of Thursday, the 13th. The former dealt with the proposal to decide questions raised by strikes by reference to courts of arbitration. Amongst the sentences contained in it, and alluded to by Mr. Ruskin, were the following: "Phrases about the 'principles of right and justice' are always suspicious and generally fallacious." "The rate of wages is determined exclusively by self-interest." "There is no such thing as a 'fair' rate of wages or a 'just' rate of wages."

turning them off as soon as I hear they are laying by money, it may yet be possible to get them for some time to take less than I suppose they should have; but I cannot hide from myself that the men are beginning to understand the game a little themselves; and if they should, with the help of those confounded—(I beg pardon! I forgot that one does not print such expressions in Pall Mall)—education-mongers, learn to be men, and to look after their own business as I do mine, what am I to do? Even at present I don't feel easy in telling them that I ought to have more money than they because I know better how to spend it, for even this involves a distant reference to notions of propriety and principle which I would gladly avoid. Will you kindly tell me what is best to be done (or said)?

I am, Sir, your obliged servant,

JOHN RUSKIN.

Easter Monday, 1865.

[From the "Pall Mall Gazette," April 21, 1865.]

WORK AND WAGES.

To the Editor of "The Pall Mall Gazette."

Sir: I am not usually unready for controversy, but I dislike it in spring, as I do the east wind (*pace* Mr. Kingsley), and I both regret having given occasion to the only dull leader which has yet[1] appeared in the *Pall Mall Gazette*, and the necessity I am involved in of dissecting the same, instead of a violet, on which I was about this morning to begin operations.

But I see, Sir, that you mean fairly, and that you have careful thinkers and writers on your staff. And I will accept your battle, if you will fight with short swords, which is clearly your interest, for such another article would sink the *Gazette;*

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[1] The Gazette was at this time of little more than eight weeks' standing. The dull leader was that in the Gazette of April 19, entitled "Masters and Men," and dealt entirely with Mr. Ruskin's letter on strikes. The "*pace* Mr. Kingsley" alludes, of course, to his Ode to the North-East Wind.

and mine, for I have no time to answer speculations on what you writers suppose my opinions may be, "if we understand" them.

You shall understand them utterly, as I already understand yours. I will not call yours "fallacies" *à priori;* you shall not call mine so. I will not tell you of your "unconscious" meanings; you shall not tell me of mine.[1] But I will ask you the plainest questions, and make to you the plainest answers my English will admit of, on one point at a time only, expecting you also to ask or answer as briefly, without divergence or deprecation. And twenty lines will always contain all I would say, at any intervals of time you choose.

For example: I said I must "dissect" your leader, meaning that I should have to take a piece of it, as I would of my flower, and deal with that first; then with its sequences.

I take this sentence then: "He (Mr. R.) seems to think that apart from the question of the powers of the parties, there is some such thing as a just rate of wages. He seems to be under the impression that the wages ought to be proportioned, not to the supply and demand of labor and capital, but 'to the hardship of the work and the time spent in it.'"

Yes, Sir, I am decisively under that impression—as decisively as ever Greek coin was under *its* impression. You will beat me out of all shape, if you can beat me out of this. Will you join issue on it, and are these following statements clear enough for you, either to accept or deny, in as positive terms?—

I. A man should in justice be paid for two hours' work twice as much as for one hour's work, and for n hours' work n times as much, if the effort be similar and continuous.

II. A man should in justice be paid for difficult or dangerous work proportionately more than for easy and safe work, supposing the other conditions of the work similar.

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[1] The leader had begun by speaking of Mr. Ruskin's previous letter as "embodying fallacies, pernicious in the highest degree," and concluded by remarking how "easily and unconsciously he glided into the true result of his principles."

III. (And now look out, for this proposition involves the ultimate principle of all just wages.) If a man does a given quantity of work for me, I am bound in justice to do, or procure to be done, a precisely equal quantity of work for him; and just trade in labor is the exchange of equivalent quantities of labor of different kinds.

If you pause at this word "equivalent," you shall have definition of it in my next letter. I am sure you will in fairness insert this challenge, whether you accept it or decline.

I am, Sir, your obliged servant,

JOHN RUSKIN.[1]

DENMARK HILL, *Thursday, April* 20.

[From "The Pall Mall Gazette," April 25, 1865.]

WORK AND WAGES.

To the Editor of "The Pall Mall Gazette."

SIR: I accept your terms, and reply in the fewest words I can.

I. You "see no injustice in hiring a fly for 2*s.* 6*d.* for the first hour and 1*s.* 6*d.* for each succeeding one." Nor I either; so far from it, that I never give a cabman less than a shilling; which I doubt not is your practice also, and a very proper one. The cabmen make no objection, and you could not have given a neater instance of the proportion of payment to labor which you deny. You pay in the first hour for the various trouble involved in taking the man off his stand, and for a proportion of the time during which he has waited for the chance of your custom. That paid, you hire him by the formula which I state, and you deny.

II. "Danger and difficulty have attractions for some men." They have, and if, under the influence of those attractions, they choose to make you a present of their labor, for love (in

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[1] In reply, the Gazette denied "each of the three propositions to be true," on grounds shown in the quotations given in the following letter.

your own terms,[1] "as you give a penny to a beggar"), you may accept the gift as the beggar does, without question of justice. But if they do not choose to give it you, they have a right to higher payment. My guide may perhaps, for love, play at climbing Mont Blanc with me; if he will not, he has a right to be paid more than for climbing the Breven.

III. "Mr. Ruskin can define justice, or any other word, as he chooses."

It is a gracious permission; but suppose justice be something more than a word! When you derived it from *jussum*[2] (falsely, for it is not derived from *jussum*, but from the root of *jungo*), you forgot, or ignored, that the Saxons had also a word for it, by which the English workman still pleads for it; that the Greeks had a word for it, by which Plato and St. Paul reasoned of it; and that the Powers of Heaven have, presumably, an idea of it with which it may be well for "our interests" that your definition, as well as mine, should ultimately correspond, since their "definitions" are commonly not by a word but a blow.

But accepting for the nonce your own conception of it as "the fulfilment of a compulsory agreement" ("the wages" you say "which you *force* the men to take, and they can *force* you to pay"), allow me to ask your definition of force, or compulsion. As thus: (*Case* 1.) I agree with my friend that we will pay a visit to Mr. A. at two in the morning, My friend agrees with me that he will hold a pistol to Mr. A.'s head. Under those circumstances, I agree with Mr. A. that I shall remove his plate without expression of objection on his part. Is this agreement, in your sense, "*jussum?*" (*Case* 2.) Mr. B. goes half through the ice into the canal on a frosty morning. I, on the shore, agree with Mr. B. that I shall have a hundred pounds for throwing him a rope. Is this agreement validly "*jussum?*"

The first of these cases expresses in small compass the gen-

[1] These "terms" were simply that the Gazette should have the right of determining how much of the proposed controversy was worth its space.

[2] In the article of April 12.

eral nature of arrangements under compulsory circumstances over which one of the parties has entire control. The second, that of arrangements made under circumstances accidentally compulsory, when the capital is in one party's hands exclusively. For you will observe Mr. B. has no right whatever to the use of my rope : and that capital (though it would probably have been only the final result of my operations with respect to Mr. A.) makes me completely master of the situation with reference to Mr. B.

I am, Sir, your obliged servant,

JOHN RUSKIN.[1]

DENMARK HILL, *Saturday, April* 22, 1865.

[From "The Pall Mall Gazette," May 2, 1865.]

WORK AND WAGES.

To the Editor of "The Pall Mall Gazette."

SIR : I have not hastened my reply to your last letter, thinking that your space at present would be otherwise occupied ; having also my own thoughts busied in various directions, such as you may fancy ; yet busied chiefly in a sad wonder, which perhaps you would not fancy. I mourn for Mr. Lincoln,[2] as man should mourn the fate of man, when it is sudden and supreme. I hate regicide as I do populicide—deeply, if frenzied ; more deeply, if deliberate. But my wonder is in remembering the tone of the English people and press respecting this man during his life ; and in comparing it with their sayings of him in his death. They caricatured and reviled him when his cause was poised in deadly balance—when their praise would have been grateful to him, and their help

[1] For the Gazette's reply to this, see the notes to the following letter.

[2] President Lincoln was shot while in his private box at Ford's Theatre, Washington, on the night of April 14, 1865, and died early the next morning. His assassin, J. Wilkes Booth, was pursued to Caroline County, Virginia, where he was fired on by the soldiery and killed. A letter was found upon him ascribing his conduct to his devotion to the Southern States.

priceless. They now declare his cause to have been just, when it needs no aid; and his purposes to have been noble, when all human thoughts of them have become vanity, and will never so much as mix their murmurs in his ears with the sentence of the Tribunal which has summoned him to receive a juster praise and tenderer blame than ours.

I have twice (I see) used the word "just" inadvertently, forgetting that it has no meaning, or may mean (you tell me) quite what we choose; and that so far as it has a meaning, "the important question is not whether the action is just." Indeed when I read this curious sentence in your reply on Tuesday last, "Justice, as we use it, implies merely the conformity of an action to any rules whatever, good or bad," I had nearly closed the discussion by telling you that there remained no ground on which we could meet, for the English workmen, in whose name I wrote to you, asked, not for conformity with bad rules, but enactment of good ones. But I will not pounce upon these careless sentences, which you are forced to write in all haste, and at all disadvantage, while I have the definitions and results determined through years of quiet labor, lying ready at my hand. You never meant what you wrote (when I said I would not tell you of unconscious meanings, I did not promise not to tell you of unconscious wants of meanings); but it is for you to tell *me* what you mean by a bad rule, and what by a good one. Of the law of the Eternal Lawgiver, it is dictated that "the commandment is holy, and just, and good." Not merely that it is a law; but that it is such and such a law. Are these terms senseless to you? or do you understand by them only that the observance of that law is generally conducive to our interests? And if so, what *are* our interests? Have we ever an interest in *being* something, as well as in getting something; may not even all getting be at last summed in being? is it not the uttermost of interest to be just rather than unjust? Let us leave catching at phrases, and try to look in each other's faces and hearts; so define our thoughts; then reason from them. [See below.][1]

[1] The bracketed [*sic*] interpolations are the remarks of the Gazette.

Yet, lest you say I evade you in generalities, here is present answer point by point.

I. "The fare has nothing to do with the labor in preparing the fly for being hired."—Nor, of course, the price of any article with the labor expended in preparing it for being sold? This will be a useful note to the next edition of "Ricardo." [The price depends on the relative forces of the buyer and the seller. The price asked by the seller no doubt depends on the labor expended. The price given by the buyer depends on the degree in which he desires to possess the thing sold, which has nothing to do with the labor laid out on it.]

The answer to your instances[1] is that all just price involves an allowance for average necessary, not for unnecessary, labor. The just price of coals at Newcastle does not involve an allowance for their carriage to Newcastle. But the just price of a cab at a stand involves an allowance to the cabman for having stood there. [Why? who is to determine what is necessary?]

II. "This admits the principle of Bargaining." No, Sir; it only admits the principle of Begging. If you like to ask your guide to give you his legs for nothing, or your workman his arms for nothing, or your shopkeeper his goods for nothing, and they consent, for love, or for play—you are doubtless both dignified and fortunate; but there is no question of trade in the matters; only of Alms. [We mean by Alms money or goods given merely from motives of benevolence, and without return. In the case supposed the guide goes one mile to please himself, and ten more for hire, which satisfies him. How does he give Alms? He goes for less money than he otherwise would require, because *he* likes the job, not because his employer likes it. The Alms are thus given by himself to himself.]

III. It is true that "every one can affix to words any sense he chooses." But if I pay for a yard of broadcloth, and the shopman cuts me three-quarters, I shall not put up with my

[1] One of the instances given by the Gazette on this point was that a sovereign made of Californian gold will not buy more wool at Sydney than a sovereign made of Australian gold, although far more labor will have been expended in bringing it to Sydney.

loss more patiently on being informed that Bishop Butler meant by justice something quite different from what Bentham meant by it, or that to give for every yard three-quarters, is the rule of that establishment. [If the word "yard" were as ambiguous as the word "justice," Mr. Ruskin ought to be much obliged to the shopman for defining his sense of it, especially if he gave you full notice before he cut the cloth.]

Further, it is easy to ascertain the uses of words by the best scholars—[Nothing is more difficult. To ascertain what Locke meant by an "idea," or Sir W. Hamilton by the word "inconceivable," is no easy task.]—and well to adopt them, because they are sure to be founded on the feelings of gentlemen.—[Different gentlemen feel and think in very different ways. Though we differ from Mr. Ruskin, we hope he will not deny this.] Thus, when Horace couples his *tenacem propositi* with *justum*, he means to assert that the tenacity is only noble which is justified by uprightness, and shows itself by insufferance of the *jussa "prava jubentium."* And although Portia does indeed accept your definition of justice from the lips of Shylock, changing the divine, "who sweareth to his own hurt, and changeth not" into the somewhat less divine "who sweareth to his neighbor's hurt and changeth not;" and though she carries out his and your conception of such justice to the uttermost, the result is not, even in Shylock's view of it, "for the interest of both parties."

IV. To your two final questions "exhausting" (by no means, my dear Sir, I assure you) "the points at issue,"[1] I reply in both cases, "No." And to your plaintive "why should they do so?" while, observe, I do not admit it to be a monstrous requirement of men that they should sometimes sacrifice

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[1] The Gazette's criticism on the previous letter had concluded thus:

The following questions exhaust the points at issue between Mr. Ruskin and ourselves:

Is every man bound to purchase any service or any goods offered him at a "just" price, he having the money?

If yes, there is an end of private property.

If no, the purchaser must be at liberty to refuse to buy if it suits his interest to do so. Suppose he does refuse, and thereupon the seller

their own interests, I would for the present merely answer that I have never found my own interests seriously compromised by my practice, which is, when I cannot get the fair price of a thing, not to sell it, and when I cannot give the fair price of a thing, not to buy it. The other day, a dealer in want of money offered me a series of Hartz minerals for two-thirds of their value. I knew their value, but did not care to spend the entire sum which would have covered it. I therefore chose forty specimens out of the seventy, and gave the dealer what he asked for the whole.

In the example you give, it is *not* the interest of the guide to take his fifty francs rather than nothing; because all future travellers, though they could afford the hundred, would then say, "You went for fifty; we will give you no more." [Does a man say to a broker, "You sold stock yesterday at 90; I will pay no more to-day"?] And for me, if I am not able to pay my hundred francs, I either forego Mont Blanc, or climb alone; and keep my fifty francs to pay at another time, for a less service, some man who also would have got nothing

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offers to lower his price, it being his interest to do so, is the purchaser at liberty to accept that offer?

If yes, the whole principle of bargaining is admitted, and the "justice" of the price becomes immaterial.

If no, each party of the supposition is compelled by justice to sacrifice their interest. Why should they do so?

The following is an example: The "just" price of a guide up Mont Blanc is (suppose) 100 francs. I have only 50 francs to spare. May I without injustice offer the 50 francs to a guide, who would otherwise get nothing, and may he without injustice accept my offer? If not, I lose my excursion, and he loses his opportunity of earning 50 francs. Why should this be?

In addition to the above interpolations, the Gazette appended a note to this letter, in which it declared its definition of justice to be a quotation from memory of Austin's definition adopted by him from Hobbes, and after referring Mr. Ruskin to Austin for the *moral* bearings of the question, concluded by summing up its views, which it doubted if Mr. Ruskin understood, and insisting on the definition of "justice" as conformity with any rule whatever, good or bad," and on that of *good* as "those which promote the general happiness of those whom they affect."

(See the next letter.)

otherwise, and who will be honestly paid by what I give him for what I ask of him.

I am, Sir, your obliged servant,

JOHN RUSKIN.

SATURDAY, 29*th April*, 1865.

[From "The Pall Mall Gazette," May 9, 1865.]

WORK AND WAGES.

To the Editor of "The Pall Mall Gazette."

SIR: I am under the impression that we are both getting prosy, or, at all events, that no one will read either my last letter or your comments upon it, in the places in which you have so gracefully introduced them. For which I am sorry, and you, I imagine, are not.

It is true that differences of feeling may exist among gentlemen; yet I think that gentlemen of all countries agree that it is rude to interrupt your opponent while he is speaking; for a futile answer gains no real force by becoming an interjection; and a strong one can abide its time. I will therefore pray you, in future, if you publish my letters at all, to practice towards them so much of old English manners as may yet be found lingering round some old English dinner-tables; where, though we may be compelled by fashion to turn the room into a green-house, and serve everything cold, the *pièces de rêsistance* are still presented whole, and carved afterwards.

Of course it is open to you to reply that I dislike close argument. Which little flourish being executed, and if you are well breathed—*en garde*, if you please.

I. Your original position was that wages (or price) bear *no* relation to hardship of work. On that I asked you to join issue. You now admit, though with apparent reluctance, that "the price asked by the seller, no doubt, depends on the labor expended."

The price asked by the seller has, I believe, in respectable commercial houses, and respectable shops, very approximate

relation to the price paid by the buyer. I do not know if you are in the habit of asking, from your wine-merchant or tailor, reduction of price on the ground that the sum remitted will be "alms to themselves;" but, having been myself in somewhat intimate connection with a house of business in the City,[1] not dishonorably accounted of during the last forty years, I know enough of their correspondents in every important town in the United Kingdom to be sure that they will bear me witness that the difference between the prices asked and the prices taken was always a very "imaginary" quantity.

But urging this no farther for the present, and marking, for gained ground, only your admission that "the price asked depends on the labor expended," will you farther tell me, whether that dependence is constant, or variable? If constant, under what law; if variable, within what limits?

II. "The alms are thus given by himself to himself." I never said they were not. I said it was a question of alms, not of trade. And if your original leader had only been an exhortation to English workmen to consider every diminution of their pay, in the picturesque though perhaps somewhat dim, religious light of alms paid by themselves to themselves, I never should have troubled you with a letter on the subject. For, singular enough, Sir, this is not one of the passages of your letters, however apparently indefensible, which I care to attack.

So far from it, in my own serious writings I have always maintained that the best work is done, and can only be done, for love.[2] But the point at issue between us is not whether there *should* be charity, but whether there *can* be trade; not whether men may give away their labor, but whether, if they

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[1] That of Messrs. Ruskin, Telford, and Domecq, in which Mr. Ruskin's father, "who began life as a wine-merchant" (Fors Clavigera, Letter x., p. 131, 1871), had been a partner.

[2] See § 41 of The Crown of Wild Olive, p. 50 of the 1873 edition. "None of the best head-work in art, literature, or science, is ever paid for. . . . It is indeed very clear that God means all thoroughly good work and talk to be done for nothing."

do not choose to do so, there is such a thing as a price for it. And my statement, as opposed to yours, is briefly this—that for all labor, there is, under given circumstances, a just price appoximately determinable; that every conscious deflection from this price towards zero is either gift on the part of the laborer, or theft on the part of the employer; and that all payment in conscious excess of this price is either theft on the part of the laborer, or gift on that of the employer.

III. If you wish to substitute the word "moral" for "just" in the above statement, I am prepared to allow the substitution; only, as you, not I, introduced this new word, I must pray for your definition of it first, whether remembered from Mr. Hobbes, or original.

IV. I am sorry you doubt my understanding your views; but, in that case, it may be well to ask for a word or two of farther elucidation.

"Justice," you say, is "conformity with any rule whatever, good or bad." And "good rules are rules which promote the general happiness of those whom they affect." And bad rules are (therefore) rules which promote the general misery of those whom they affect? Justice, therefore, may as often as not promote the general misery of those who practice it? Do you intend this?[1]

Again: "Good rules are rules which promote the general happiness of those whom they affect." But, "the greatest happiness of the greatest number is best secured by laying down no rule at all" (as to the price of "labor").

Do you propose this as a sequitur? for if not, it is merely a *petitio principii*, and a somewhat wide one. Before, therefore, we branch into poetical questions concerning happiness, we will, with your permission, and according to my original stipulation, that we should dispute only of one point at a time, determine the matters already at issue. To which end, also, I leave without reply some parts of your last letter; not with-

[1] "Yes. But, generally speaking, rules are beneficial; hence, generally speaking, justice is a good thing in fact. A state of society might be imagined in which it would be a hideously bad thing."—(Foot-note answer of the Gazette.)

out a little strain on the ἔρκος ὀδοντων, for which I think, Sir, you may give me openly, credit, if not tacitly, thanks.

I am, Sir, your obliged servant,

JOHN RUSKIN.

DENMARK HILL, *May* 4.

[From "The Pall Mall Gazette," May 22, 1865.]

WORK AND WAGES.

To the Editor of "The Pall Mall Gazette."

SIR: I have long delayed my reply to your notes on my last letter; partly being otherwise busy—partly in a pause of surprise and doubt how low in the elements of ethics we were to descend.

Let me, however, first assure you that I heartily concur in your opening remarks, and shall be glad to spare useless and avoid discourteous words. When you said, in your first reply to me, that my letter embodied fallacies which appeared to you pernicious in the highest degree, I also "could not consider this sort of language well judged." When you called one of your own questions an answer, and declared it to be "simple and perfectly conclusive," I thought the flourish might have been spared; and for having accused you of writing carelessly, I must hope your pardon; for the discourtesy, in my mind, would have been in imagining you to be writing with care.

For instance, I should hold it discourteous to suppose you unaware of the ordinary distinction between law and equity: yet no consciousness of such a distinction appears in your articles. I should hold it discourteous to doubt your acquaintance with the elementary principles laid down by the great jurists of all nations respecting Divine and Human law; yet such a doubt forces itself on me if I consider your replies as deliberate. And I should decline to continue the discussion with an opponent who could conceive of justice as (under any circumstances) "an hideously bad thing," if I did not suppose him to have mistaken the hideousness of

justice, in certain phases, to certain persons, for its ultimate nature and power.

There may be question respecting these inaccuracies of thought; there can be none respecting the carelessness of expression which causes the phrases "are" and "ought to be" to alternate in your articles as if they were alike in meaning.

I have permitted this, that I might see the course of your argument in your own terms, but it is now needful that the confusion should cease. That wages *are* determined by supply and demand is no proof that under any circumstances they must be—still less that under all circumstances they ought to be. Permit me, therefore, to know the sense in which you use the word "ought" in your paragraph lettered *b*, page 832 [1] (second column), and to ask whether the words "due," "duty," "devoir," and other such, connected in idea with the first and third of the "præcepta juris" of Justinian, quoted by Blackstone as a summary of the whole doctrine of law (*honeste vivere,—alterum non lædere,—suumque cuique tribuere*), are without meaning to you except as conditions of agreement? [2] Whether, in fact, there be, in your view, any *honos*, absolutely; or whether we are to launch out into an historical investigation of the several kinds of happiness enjoyed in lives of rapine, of selfish trade, and of unselfish citizenship, and to decide only upon evidence whether we will live as pirates, as pedlers, or as gentlemen? If so, while I shall be glad to see you undertake, independently, so interesting an inquiry, I must reserve my comments on it until its close.

But if you admit an absolute idea of a "devoir" of one man to another, and of every honorable man to himself, tell me why you dissent from my statement of the terms of that

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[1] Viz., "Wages ought to be proportioned to the supply and demand of labor and capital, and not to the hardship of the work and the time spent on it."

[2] "Justitia est constans et perpetua voluntas suum cuique tribuendi . . . . Jurisprudentia est divinarum atque humanarum rerum notitia, justi atque injusti scientia." The third precept is given above. Justinian, Inst. i. 1–3; and see Blackstone, vol. i. section 2, "Of the Nature of Laws in General."

debt in the opening of this discussion. Observe, I asked for no evangelical virtue of returning good for evil: I asked only for the Sinaitic equity of return in good for good, as for Sinaitic equity of return in evil for evil. "Eye for eye," tooth for tooth"—be it so; but will you thus pray according to the *lex talionis* and not according to the *lex gratiæ?* Your debt is on both sides. Does a man take of your life, you take also of his. Shall he give you of his life, and will you not give him also of yours? If this be not your law of duty to him, tell me what other there is, or if you verily believe there is none.

But you ask of such repayment, "Who shall determine how much?[1] I took no notice of the question, irrelevant when you asked it; but in its broad bearing it is the one imperative question of national economy. Of old, as at bridgefoot of Florence, men regulated their revenge by the law of demand and supply, and asked in measureless anger, "Who shall determine how much?" with economy of blood, such as we know. That "much" is now, with some approximate equity, determined at the judgment-seat, but for the other debt, the debt of love, we have no law but that of the wolf, and the locust, and the "fishes of the sea, which have no ruler over them." The workmen of England—of the world, ask for the return—as of wrath, so of reward by law; and for blood resolutely spent, as for that recklessly shed; for life devoted through its duration, as for that untimely cast away; they require from you to determine, in judgment, the equities of "Human Retribution."

I am, Sir, your faithful servant,

J. Ruskin.[2]

May 20, 1865.

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[1] See *ante*, second interpolation of the Gazette, on p. 59.

[2] The discussion was not continued beyond this letter, the Gazette judging any continuance useless, the difference between Mr. Ruskin and themselves being "one of first principles."

[From "The Pall Mall Gazette," May 1, 1867. Reprinted also, with slight alterations, in "Time and Tide." App. vii.]

THE STANDARD OF WAGES.

To the Editor of "The Pall Mall Gazette."

Sir: In the course of your yesterday's article on strikes[1] you have very neatly and tersely expressed the primal fallacy of modern political economy—to wit, that the value of any piece of labor cannot be defined; and that "all that can be ascertained is simply whether any man can be got to do it for a certain sum."

Now, sir, the "value" of any piece of labor (*I* should have written "price," not "value," but it is no matter)—that is to say, the quantity of food and air which will enable a man to perform it without eventually losing any of his flesh or nervous energy, is as absolutely fixed a quantity as the weight of powder necessary to carry a given ball a given distance. And within limits varying by exceedingly minor and unimportant circumstances, it is an ascertainable quantity. I told the public this five years ago, and—under pardon of your politico-economical contributor, it is not a sentimental, but a chemical, fact. Let any half-dozen London physicians of recognized standing state in precise terms the quantity and kind of food, and space of lodging, they consider approximately necessary for the healthy life of a laborer in any given manufacture, and the number of hours he may, without shortening his life, work at such business daily, if in such manner he be sustained. Let all masters be bound to give their men

[1] As regards "strikes," it is of interest to note the following amendment proposed by Mr. Ruskin at a special meeting of the National Association for the Promotion of Social Science on the subject, held in 1868: "That, in the opinion of this meeting, the interests of workmen and their employers are at present opposed, and can only become identical when all are equally employed in defined labor and recognized duty, and all, from the highest to the lowest, are paid fixed salaries, proportioned to the value of their services and sufficient for their honorable maintenance in the situations of life properly occupied by them." —Daily Telegraph, July 16, 1868.

a choice between an order for that quantity of food and space of lodging, or the market wages for that specified number of hours of work. Proper laws for the maintenance of families would require further concession; but in the outset, let but this law of wages be established, and if then we have more strikes, you may denounce them without one word of remonstrance either from sense or sensibility.

I am, Sir, with sentiments of great respect,

Your faithful servant,

JOHN RUSKIN.

DENMARK HILL, *April* 30, 1867.

[From "The Pall Mall Gazette," January 24, 1873.]

HOW THE RICH SPEND THEIR MONEY.

To the Editor of "The Pall Mall Gazette."

SIR: Here among the hills, I read little, and withstand, sometimes for a fortnight together, even the attractions of my *Pall Mall Gazette.* A friend, however, sent me, two days ago, your article signed W. R. G. on spending of money (January 13),[1] which, as I happened to have over-eaten myself the day before, and taken perhaps a glass too much besides of quite priceless port (Quarles Harris, twenty years in bottle), would have been a great comfort to my mind, showing me that if I

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[1] The article, or rather letter, dealt with a paper on "The Labor Movement" by Mr. Goldwin Smith in the Contemporary Review of December, 1872, and especially with the following sentences in it: "When did wealth rear such enchanted palaces of luxury as it is rearing in England at the present day? Well do I remember one of those palaces, the most conspicuous object for miles round. Its lord was, I dare say, consuming the income of some hundreds of the poor laboring families around him. The thought that you are spending on yourself annually the income of six hundred laboring families seems to me as much as a man with a heart and a brain can bear." W. R. G.'s letter argued that this "heartless expenditure all goes into the pockets" of the poor families, who are thus benefited by the selfish luxuries of the lord in his palace.

had done some harm to myself, I had at least conferred benefit upon the poor by these excesses, had I not been left in some painful doubt, even at the end of W. R. G.'s most intelligent illustrations, whether I ought not to have exerted myself further in the cause of humanity, and by the use of some cathartic process, such as appears to have been without inconvenience practised by the ancients, enabled myself to eat two dinners instead of one. But I write to you to-day, because if I were a poor man, instead of a (moderately) rich one, I am nearly certain that W. R. G.'s paper would suggest to me a question, which I am sure he will kindly answer in your columns, namely, "These means of living, which this generous and useful gentleman is so fortunately disposed to bestow on me—where does he get them himself?"

I am, Sir, your faithful servant,

J. RUSKIN.

BRANTWOOD, CONISTON, *Jan.* 23.

[From "The Pall Mall Gazette," January 29, 1873.]

HOW THE RICH SPEND THEIR MONEY.

To the Editor of "The Pall Mall Gazette."

SIR: I am disappointed of my *Gazette* to-day, and shall be grievously busy to-morrow. I think it better, therefore, to follow up my own letter, if you will permit me, with a simple and brief statement of the facts, than to wait till I see your correspondent W. R. G.'s reply, if he has vouchsafed me one.

These are the facts. The laborious poor produce "the means of life" by their labor. Rich persons possess themselves by various expedients of a right to dispense these "means of life," and keeping as much means as they want of it for themselves, and rather more, dispense the rest, usually only in return for more labor from the poor, expended in producing various delights for the rich dispenser. The idea is now gradually entering poor men's minds, that they may as well keep in their own hands the right of distributing "the

means of life" they produce; and employ themselves, so far as they need extra occupation, for their own entertainment or benefit, rather than that of other people. There is something to be said, nevertheless, in favor of the present arrangement, but it cannot be defended in disguise; and it is impossible to do more harm to the cause of order, or the rights of property, than by endeavors, such as that of your correspondent, to revive the absurd and, among all vigorous thinkers, long since exploded notion of the dependence of the poor upon the rich.

I am, Sir, your obedient servant,

January 28. J. RUSKIN.

[From "The Pall Mall Gazette," January 31, 1873.]

HOW THE RICH SPEND THEIR MONEY.

To the Editor of "The Pall Mall Gazette."

SIR: I have my *Pall Mall Gazette* of the 28th to-day, and must at once, with your permission, solemnly deny the insidiosity of my question, "Where does the rich man get his means of living?" I don't myself see how a more straightforward question could be put! So straightforward indeed that I particularly dislike making a martyr of myself in answering it, as I must this blessed day—a martyr, at least, in the way of witness; for if we rich people don't begin to speak honestly with our tongues, we shall, some day soon, lose them and our heads together, having for some time back, most of us, made false use of the one and none of the other. Well, for the point in question then, as to means of living: the most exemplary manner of answer is simply to state how I got my own, or rather how my father got them for me. He and his partners entered into what your correspondent mellifluously styles "a mutually beneficent partnership,"[1] with certain laborers in Spain. These laborers produced from the earth

[1] W. R. G. had declared that the rich man (or his ancestors) got the money "by co-operation with the poor . . . by, in fact, entering into a mutually beneficent partnership with them, and advancing them their share of the joint profits . . . paying them beforehand, in a word."

annually a certain number of bottles of wine. These productions were sold by my father and his partners, who kept nine-tenths, or thereabouts, of the price themselves, and gave one-tenth, or thereabouts, to the laborers. In which state of mutual beneficence my father and his partners naturally became rich, and the laborers as naturally remained poor. Then my good father gave all his money to me (who never did a stroke of work in my life worth my salt, not to mention my dinner), and so far from finding his money "grow" in my hands, I never try to buy anything with it; but people tell me "money isn't what it was in your father's time, everything is so much dearer." I should be heartily glad to learn from your correspondent as much pecuniary botany as will enable me to set my money a-growing; and in the mean time, as I have thus given a quite indubitable instance of my notions of the way money is made, will he be so kind as to give us, not an heraldic example of the dark ages (though I suspect I know more of the pedigree of money, if he come to that, than he does),[1] but a living example of a rich gentleman who *has* made his money by saving an *equal* portion of profit in some mutually beneficent partnership with his laborers?

I am, Sir, your obedient servant,

J. Ruskin.

Brantwood, Coniston,
King Charles the Martyr, 1873.

P. S.—I see by Christie & Manson's advertisement that some of the best bits of work of a good laborer I once knew, J. M. W. Turner (the original plates namely of the "Liber Studiorum"), are just going to be destroyed by some of his affectionate relations. May I beg your correspondent to explain, for your readers' benefit, this charming case of hereditary accumulation?

[1] W. R. G. had written: "In nine cases out of ten, in the case of acquired wealth, we should probably find, were the pedigree traced fairly and far back enough, that the original difference between the now rich man and the now poor man was, that the latter habitually spent all his earnings, and the former habitually saved a portion of his in order that it might accumulate and fructify."

[Date and place of publication unknown.]

COMMERCIAL MORALITY.[1]

My Dear Sir: Mr. Johnson's speech in the Manchester Chamber of Commerce, which you favor me by sending, appears to me the most important event that has occurred in relation to the true interests of the country during my lifetime. It begins an era of true civilization. I shall allude to it in the "Fors" of March, and make it the chief subject of the one following (the matter of this being already prepared.[2] It goes far beyond what I had even hoped to hear admitted—how much less enforced so gravely and weightily in the commercial world.

Believe me, faithfully yours,

J. Ruskin.

[From "The Monetary and Mining Gazette," November 13, 1875.]

THE DEFINITION OF WEALTH.

Corpus Christi College, Oxford,
9th November, 1875.

To the Editor of "The Monetary Gazette."

Sir: I congratulate you with all my mind on the sense, and with all my heart on the courage, of your last Saturday's leading article, which I have just seen.[3] You have asserted in it

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[1] This letter was received from Mr. Ruskin by a gentleman in Manchester, who had forwarded to him a copy of the speech made by Mr. Richard Johnson (President) at the fifty-fourth annual meeting of the Manchester Chamber of Commerce, Feb. 1, 1875. Mr. Johnson's address dealt with the immorality of cheapness, the duties of merchants and manufacturers as public servants, and the nobility of trade as a profession which, when rightly and unselfishly conducted, would yield to no other "in the dignity of its nature and in the employment that it offers to the highest faculties of man."

[2] In Fors Clavigera, (vol. ii., p. 354) Mr. Johnson's speech is named as "the first living words respecting commerce which I have ever known to be spoken in England, in my time," but the discussion of it is postponed.

[3] The article was entitled, "What shall we do with it?"

the two vital principles of economy, that society cannot exist by reciprocal pilfering, but must produce wealth if it would have it; and that money must not be lent, but administered by its masters.

You have not yet, however, defined wealth itself, or told the ingenuity of the public what it is to produce.

I have never been able to obtain this definition from economists;[1] perhaps, under the pressure of facts, they may at last discover some meaning in mine at the twenty-fourth and twenty-fifth pages of "Munera Pulveris."

I am, Sir, your obedient servant,

J. RUSKIN.

[From "The Socialist," an Advocate of Love, Truth, Justice, etc., etc. Printed and Published by the Proprietor, W. Freeland, 52 Scotland Street, Sheffield, November, 1877.]

THE PRINCIPLES OF PROPERTY.

10*th Oct.*, 1877.

To the Editor of "The Socialist."

SIR: Some Sheffield friend has sent me your fourth number, in the general teaching of which I am thankful to be able to concur without qualification: but let me earnestly beg of you not to confuse the discussion of the principles of Property in Earth, Air, or Water, with the discussion of principles of Property in general.[2] The things which, being our neighbor's, the Mosaic Law commands us not to covet, are by the most solemn Natural Laws, indeed our neighbor's "property," and any attempts to communize these have always ended, and will always end, in ruin and shame.

Do not attempt to learn from America. An Englishman has brains enough to discover for himself what is good for

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[1] At the meeting of the Social Science Association already alluded to (p. 4 note), Mr. Ruskin said that in 1858 he had in vain challenged Mr. Mill to define wealth. The passages referred to in Munera Pulveris consist of the statement and explanation of the definition of Value. See *ante*, p. 68, note.

[2] The references in the letter are to an article on Property entitled, "What should be done?"

England; and should learn, when he is to be taught anything, from his Fathers, not from his children.

I observe in the first column of your 15th page the assertion by your correspondent of his definition of money as if different from mine. He only weakens my definition with a "certificate of credit" instead of a "promise to pay." What is the use of giving a man "credit"—if you don't engage to pay him?

But I observe that nearly all my readers stop at this more or less metaphysical definition which I give in "Unto this Last," instead of going on to the practical statement of immediate need made in "Munera Pulveris." [1]

The promise to find Labor is one which meets general demand; but the promise to find Bread is the answer needed to immediate demand; and the only sound bases of National Currency are shown both in "Munera Pulveris," and "Fors Clavigera," to be bread, fuel, and clothing material, of certified quality.

I am Sir, your faithful servant,

J. RUSKIN.

[From "The Christian Life," December 20, 1879.]

ON CO-OPERATION.[2]

BRANTWOOD, CONISTON, LANCASHIRE.

DEAR MR. HOLYOAKE: I am not able to write you a pretty letter to-day, being sadly tired, but am very heartily glad to be remembered by you. But it utterly silences me that you

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[1] See Unto this Last, p. 53, note. "The final and best definition of money is that it is a documentary promise ratified and guaranteed by the nation, to give or find a certain quantity of labor on demand. See also Munera Pulveria, §§ 21–25.

[2] This letter, which was reprinted in the Coventry Co-operative Record of January, 1880, was written, some time in August, 1879, to Mr. George Jacob Holyoake, who had sent Mr. Ruskin his History of Co-operation: its Literature and its Advocates, 2 vols. London and Manchester, 1875–7.

should waste your time and energy in writing "Histories of Co-operation" anywhere as yet. My dear Sir, you might as well write the history of the yellow spot in an egg—in two volumes. Co-operation is as yet—in any true sense—as impossible as the crystallization of Thames mud.

Ever faithfully yours,

J. Ruskin.

[From "The Daily News," June 19, 1880.]

ON CO-OPERATION.

Brantwood, Coniston, Lancashire,
April 12, 1880.

Dear Mr. Holyoake: I am very glad that you are safe back in England, and am not a little grateful for your kind reference to me while in America, and for your letter about Sheffield Museum.[1] But let me pray for another interpretation of my former letter than mere Utopianism. The one calamity which I perceive or dread for an Englishman is his becoming a rascal, and co-operation among rascals—if it were possible—would bring a curse. Every year sees our workmen more eager to do bad work and rob their customers on the sly. All political movement among such animals I call essentially fermentation and putrefaction—not co-operation.

Ever affectionately yours,

J. Ruskin.

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[1] The "kind reference to Mr. Ruskin while in America" alludes to a public speech made by Mr. Holyoake during his stay in that country. The "letter about Sheffield Museum," was one in high praise of it, written by Mr. Holyoake to the editor of the Sheffield Independent, in which paper it was printed (March 8, 1880).

MISCELLANEOUS LETTERS.

I.—THE MANAGEMENT OF RAILWAYS.

[From "The Daily Telegraph," July 31, 1868.]

IS ENGLAND BIG ENOUGH?

To the Editor of "The Daily Telegraph."

Sir: You terminate to-day a discussion which seems to have been greatly interesting to your readers, by telling them the "broad fact, that England is no longer big enough for her inhabitants."[1]

Might you not, in the leisure of the recess, open with advantage a discussion likely to be no less interesting, and much more useful—namely, how big England may be made for economical inhabitants, and how little she may be made for wasteful ones? Might you not invite letters on this quite radical and essential question—how money is truly made, and how it is truly lost, not by one person or another, but by the whole nation?

For, practically, people's eyes are so intensely fixed on the immediate operation of money as it changes hands, that they hardly ever reflect on its first origin or final disappearance. They are always considering how to get it from somebody

[1] The discussion had been carried on in a series of letters from a great number of correspondents under the heading of "Marriage or Celibacy," its subject being the pecuniary difficulties in the way of early marriage. The Daily Telegraph of July 30 concluded the discussion with a leading article, in which it characterized the general nature of the correspondence and of which the final words were those quoted by Mr. Ruskin.

else, but never how to get it where that somebody else got it. Also, they very naturally mourn over their loss of it to other people, without reflecting that, if not lost altogether, it may still be of some reflective advantage to them. Whereas, the real national question is not who is losing or gaining money, but who is making and who destroying it. I do not of course mean making money, in the sense of printing notes or finding gold. True money cannot be so made. When an island is too small for its inhabitants, it would not help them to one ounce of bread more to have the entire island turned into one nugget, or to find bank notes growing by its rivulets instead of fern leaves. Neither, by destroying money, do I mean burning notes, or throwing gold away. If I burn a five-pound note, or throw five sovereigns into the sea, I hurt no one but myself; nay, I benefit others, for everybody with a pound in his pocket is richer by the withdrawal of my competition in the market. But what I want you to make your readers discover is how the *true* money is made that will get them houses and dinners; and on the other hand how money is truly lost, or so diminished in value that all they can get in a year will not buy them comfortable houses, nor satisfactory dinners.

Surely this is a question which people would like to have clearly answered for them, and it might lead to some important results if the answer were acted upon. The riband-makers at Coventry, starving, invite the ladies of England to wear ribands. The compassionate ladies of England invest themselves in rainbows, and admiring economists declare the nation to be benefited. No one asks where the ladies got the money to spend in rainbows (which is the first question in the business), nor whether the money once so spent will ever return again, or has really faded with the faded ribands and disappeared forever. Again, honest people every day lose quantities of money to dishonest people. But that is merely a change of hands much to be regretted; but the money is not therefore itself lost; the dishonest people must spend it at last somehow. A youth at college loses his year's income to a Jew. But the Jew must spend it instead of him. Miser

or not, the day must come when his hands relax. A railroad shareholder loses his money to a director; but the director must some day spend it instead of him. That is not—at least in the first fact of it—*national* loss. But what the public need to know is, how a final and perfect *loss* of money takes place, so that the whole nation, instead of being rich, shall be getting gradually poor. And then, indeed, if one man in spending his money destroys it, and another in spending it makes more of it, it becomes a grave question in whose hands it is, and whether honest or dishonest people are likely to spend it to the best purpose. Will you permit me, Sir, to lay this not unprofitable subject of inquiry before your readers, while, to the very best purpose, they are investing a little money in sea air?

Very sincerely yours,

J. Ruskin.

Denmark Hill, *July* 30.

[From "The Daily Telegraph," August 6, 1868.]

THE OWNERSHIP OF RAILWAYS.[1]

To the Editor of "The Daily Telegraph."

Sir: The ingenious British public seems to be discovering, to its cost, that the beautiful law of supply and demand does not apply in a pleasant manner to railroad transit. But if they are prepared to submit patiently to the "natural" laws of political economy, what right have they to complain? The railroad belongs to the shareholders; and has not everybody a right to ask the highest price he can get for his wares? The

[1] In the Daily Telegraph of August 3 appeared eight letters, all of which, under the heading of "Increased Railway Fares," complained of the price of tickets on various lines having been suddenly raised. In the issue of August 4 eighteen letters appeared on the subject, whilst in that of the 5th there were again eight letters. Mr. Ruskin's letter was one of four in the issue of the 6th. It has, it will be seen, no direct connection with that one entitled "Is England Big Enough?" which precedes it in these volumes owing to the allusions to it in one of these railway letters (p. 282).

public have a perfect right to walk, or to make other opposition railroads for themselves, if they please, but not to abuse the shareholders for asking as much as they think they can get.

Will you allow me to put the *real* rights of the matter before them in a few words?

Neither the roads nor the railroads of any nation should belong to any private persons. All means of public transit should be provided at public expense, by public determination where such means are needed, and the public should be its own "shareholder."

Neither road, nor railroad, nor canal should ever pay dividends to anybody. They should pay their working expenses, and no more. All dividends are simply a tax on the traveller and the goods, levied by the person to whom the road or canal belongs, for the right of passing over his property. And this right should at once be purchased by the nation, and the original cost of the roadway—be it of gravel, iron, or adamant—at once defrayed by the nation, and then the whole work of the carriage of persons or goods done for ascertained prices, by salaried officers, as the carriage of letters is done now.

I believe, if the votes of the proprietors of all the railroads in the kingdom were taken *en masse*, it would be found that the majority would gladly receive back their original capital, and cede their right of "revising" prices of railway tickets. And if railway property *is* a good and wise investment of capital, the public need not shrink from taking the whole off their hands. Let the public take it. (I, for one, who never held a rag of railroad scrip in my life, nor ever willingly travelled behind an engine where a horse could pull me, will most gladly subscribe my proper share for such purchase according to my income.) Then let them examine what lines pay their working expenses and what lines do not, and boldly leave the unpaying embankments to be white over with sheep, like Roman camps, take up the working lines on sound principles, pay their drivers and pointsmen well, keep their carriages clean and in good repair, and make it as wonderful a thing for a train, as for an old mail-coach, to be behind its time;

and the sagacious British public will very soon find its pocket heavier, its heart lighter, and its "passages" pleasanter, than any of the three have been, for many a day.

I am, Sir, always faithfully yours,

J. RUSKIN.

DENMARK HILL, *Aug.* 5.

[From "The Daily Telegraph," August 10, 1868.]

RAILWAY ECONOMY.

To the Editor of "The Daily Telegraph."

SIR: I had not intended again to trespass on your space until I could obtain a general idea of the views of your correspondents on the questions you permitted me to lay before them in my letters of the 31st July and 5th inst.; but I must ask you to allow me to correct an impression likely to be created by your reference to that second letter in your interesting article on the Great Eastern Railway, and to reply briefly to the question of your correspondent "S." on the same subject.[1]

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[1] The Daily Telegraph of Saturday, August 8, contained an article on the "Increased Railway Fares," in which, commenting on Mr. Ruskin's statement that, given the law of political economy, the railways might ask as much as they could get, it said that Mr. Ruskin mistook "the charge against the companies. While they neglected the 'law of supply and demand,' they suffered: now that they obey that law, they prosper." The latter part of the article dealt with a long letter signed "Fair Play," which was printed in the Daily Telegraph of the same day. "To Mr. Ruskin, who laughs at Political Economy," concluded the article; "and to 'Fair Play,' who thinks that Parliament is at the bottom of all the mischief, we commend a significant fact. An agitation is now on foot in Brighton to have a second railway direct to London. What is the cause of this? Not the Legislature, but the conduct of the Brighton company in raising its fares. That board, by acting in the spirit of a monopoly, has provoked retaliation, and the public now seeks to protect itself by the aid of a competing line."

The letter of the correspondent "S" (also in the Daily Telegraph of August 8) began by asking "what the capitalist is to do with his money, if the Government works the railways on the principle of the Post Office."

You say that I mistook the charge against the railway companies in taunting my unfortunate neighbors at Sydenham[1] with their complaints against the operation of the law of supply and demand, and that it was because the companies neglected that law that they suffered.

But, Sir, the law of supply and demand, as believed in by the British public under the guidance of their economists, is a natural law regulating prices, which it is not at all in their option to "neglect." And it is precisely because I have always declared that there is no such natural law, but that prices can be, and ought to be, regulated by laws of expediency and justice, that political economists have thought I did not understand their science, and you now say I laugh at it. No, Sir, I laughed only at what was clearly no science, but vain endeavor to allege as irresistible natural law, what is indeed a too easily resisted prudential law, rewarding and chastising us according to our obedience. So far from despising true political economy, based on such prudential law, I have for years been chiefly occupied in defending its conclusions, having given this definition of it in 1862. "Political Economy is neither an art nor a science; but a system of conduct and legislature founded on the sciences, including the arts, and impossible except under certain conditions of moral culture."[2]

And, Sir, nothing could better show the evil of competition as opposed to the equitable regulation of prices than the instance to which you refer your correspondent "Fair Play" —the agitation in Brighton for a second railway. True prudential law would make one railway serve it thoroughly, and fix the fares necessary to pay for thorough service. Competition will make two railways (sinking twice the capital really required); then, if the two companies combine, they can oppress the public as effectively as one could; if they do not,

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[1] Several of the letters had been written by residents in the neighborhood of Sydenham.

[2] Essays on Political Economy (Fraser's Magazine, June, 1862, p. 784), now reprinted in Munera Pulveris, p. 19, § 1.

they will keep the said public in dirty carriages and in danger of its life, by lowering the working expenses to a minimum in their antagonism.

Next, to the question of your correspondent "S.," "what I expect the capitalist to do with his money," so far as it is asked in good faith I gladly reply, that no one's "expectations" are in this matter of the slightest consequence; but that the moral laws which properly regulate the disposition of revenue, and the physical laws which determine returns proportioned to the wisdom of its employment, are of the greatest consequence; and these may be briefly stated as follows:

1. All capital is justly and rationally invested which supports productive labor (that is to say, labor directly producing or distributing good food, clothes, lodging, or fuel); so long as it renders to the possessor of the capital, and to those whom he employs, only such gain as shall justly remunerate the superintendence and labor given to the business, and maintain both master and operative happily in the positions of life involved by their several functions. And it is highly advantageous for the nation that wise superintendence and honest labor should both be highly rewarded. But all rates of interest or modes of profit or capital, which render possible the rapid accumulation of fortunes, are simply forms of taxation, by individuals, on labor, purchase, or transport; and are highly detrimental to the national interest, being, indeed, no means of national gain, but only the abstraction of small gains from many to form the large gain of one. For, though inequality of fortune is not in itself an evil, but in many respects desirable, it is always an evil when unjustly or stealthily obtained, since the men who desire to make fortunes by large interest are precisely those who will make the worst use of their wealth.

2. Capital sunk in the production of objects which do not immediately support life (as statues, pictures, architecture, books, garden-flowers, and the like) is beneficially sunk if the things thus produced are good of their kind, and honestly desired by the nation for their own sake; but it is sunk ruinously if they are bad of their kind, or desired only for pride or gain. Neither can good art be produced as an "investment."

You cannot build a good cathedral if you only build it that you may charge sixpence for entrance.

3. "Private enterprise" should never be interfered with, but, on the contrary, much encouraged, so long as it is indeed "enterprise" (the exercise of individual ingenuity and audacity in new fields of true labor), and so long as it is indeed "private," paying its way at its own cost, and in no wise harmfully affecting public comforts or interests. But "private enterprise" which poisons its neighborhood, or speculates for individual gain at common risk, is very sharply to be interfered with.

4. All enterprise, constantly and demonstrably profitable on ascertained conditions, should be made public enterprise, under Government administration and security; and the funds now innocently contributed, and too often far from innocently absorbed, in vain speculation, as noted in your correspondent "Fair Play's" excellent letter,[1] ought to be received by Government, employed by it, not in casting guns, but in growing corn and feeding cattle, and the largest possible legitimate interest returned without risk to these small and variously occupied capitalists, who cannot look after their own money. We should need another kind of Government to do this for us, it is true; also it is true that we can get it, if we choose; but we must recognize the duties of governors before we can elect the men fit to perform them.

The benefit of these several modes of right investment of capital would be quickly felt by the nation, not in the increase of isolated or nominal wealth, but in steady lowering of the prices of all the necessaries and innocent luxuries of life, and in the disciplined, orderly, and in that degree educational employment of every able-bodied person. For, Sir (again with your pardon), my question "Is England big enough?" was not answered by the sad experience of the artisans of Poplar. Had they been employed in earthbuilding instead of in ship-

[1] "Fair Play's" letter noted the result of investments made in bubble railways, generally by "honest country folks" or "poor clergymen and widows."

building, and heaped the Isle of Dogs itself into half as much space of good land, capable of growing corn instead of mosquitoes, they would actually have made habitable England a little bigger by this time ;[1] and if the first principle of economy in employment were understood among us—namely, always to use whatever vital power of breath and muscle you have got in the country before you use the artificial power of steam and iron for what living arms can do, and never plough by steam while you forward your ploughman to Quebec—those old familiar faces need not yet have looked their last at each other from the deck of the St. Lawrence. But on this subject I will ask your permission to write you in a few days some further words.[2]

I am, Sir, your faithful servant,

J. Ruskin.

Denmark Hill, *Aug.* 9.

[From "The Daily Telegraph," December 8, 1865.]

OUR RAILWAY SYSTEM.

To the Editor of "The Daily Telegraph."

Sir : Will you allow me a few words with reference to your excellent article of to-day on railroads.[3] All you say is true. But of what use is it to tell the public this? Of all the economical stupidities of the public—and they are many—the out-and-out stupidest is underpaying their pointsmen ; but if the said public choose always to leave their lines in the hands of companies—that is to say practically, of engineers and

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[1] Alluding to an article in the Daily Telegraph of August 8, headed "East-End Emigrants," which, after remarking that "Mr. Ruskin's question, Is England big enough ?" had been just answered rather sadly by a number of Poplar artisans, described the emigration to Quebec on board the St. Lawrence of these inhabitants of the Isle of Dogs, and how, as the ship left the dock, "there were many tears shed, as old, familiar faces looked on each other for the last time."

[2] Never, it seems, written.

[3] An article which, dealing directly with some recent railway accidents, commented especially on the overcrowding of the lines.

lawyers—the money they pay for fares will always go, most of it, into the engineers' and lawyers' pockets. It will be spent in decorating railroad stations with black and blue bricks, and in fighting bills for branch lines. I hear there are more bills for new lines to be brought forward this year than at any previous session. But, Sir, it might do some little good if you were to put it into the engineers' and lawyers' heads that they might for some time to come get as much money for themselves (and a little more safety for the public) by bringing in bills for doubling laterally the present lines as for ramifying them; and if you were also to explain to the shareholders that it would be wiser to spend their capital in preventing accidents attended by costly damages, than in running trains at a loss on opposition branches. It is little business of mine—for I am not a railroad traveller usually more then twice in the year; but I don't like to hear of people's being smashed, even when it is all their fault; so I will ask you merely to reprint this passage from my article on Political Economy in *Fraser's Magazine* for April, 1863, and so leave the matter to your handling:

"Had the money spent in local mistakes and vain private litigation on the railroads of England been laid out, instead, under proper Government restraint, on really useful railroad work, and had no absurd expense been incurred in ornamenting stations, we might already have had—what ultimately it will be found we must have—quadruple rails, two for passengers and two for traffic, on every great line, and we might have been carried in swift safety, and watched and warded by well-paid pointsmen, for half the present fares."[1]

I am, Sir, your faithful servant,

J. RUSKIN.

DENMARK HILL, *Dec.* 7.

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[1] Essays on Political Economy (Frazer's Magazine, April, 1863, p 449); Munera Pulveris, p. 105, § 128.

[From "The Daily Telegraph," November 30, 1870.]

RAILWAY SAFETY.[1]

To the Editor of "The Daily Telegraph."

SIR: I am very busy, and have not time to write new phrases. Would you mind again reprinting (as you were good enough to do a few days ago [2]) a sentence from one of the books of mine which everybody said were frantic when I wrote them? You see the date—1863.

I am, Sir, your faithful servant,

J. RUSKIN.

DENMARK HILL, *Nov.* 29, 1870.

I have underlined the words I want to be noticed, but, as you see, made no change in a syllable.

Already the Government, not unapproved, carries letters and parcels for us. Larger packages may in time follow—even general merchandise; why not, at last, ourselves? Had the money spent in local mistakes and vain private litigations on the railroads of England been laid out, instead, under proper Government restraint, on really useful railroad work, *and had no absurd expense been incurred in ornamenting stations*, we might already have had—what ultimately it will be found we MUST have—*quadruple rails, two for passengers, and two for traffic, on every great line;* and we might have been carried in swift safety, and watched and warded by well-paid pointsmen, for half the present fares.

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[1] This letter was elicited by a leading article in the Daily Telegraph of November 29, 1870, upon railway accidents, and the means of their prevention, *à propos* of two recent accidents which had occurred, both on the same day (November 26, 1870) on the London rnd North-Western Railway.

[2] In the first letter on the Franco-Prussian War, *ante*, p. 32. (Daily Telegraph, Oct. 7, 1870.)

II.—SERVANTS AND HOUSES.

[From "The Daily Telegraph," September 5, 1865.]

DOMESTIC SERVANTS—MASTERSHIP.

To the Editor of "The Daily Telegraph."

SIR: You so seldom write nonsense, that you will, I am sure, pardon your friends for telling you when you do. Your article on servants to-day is nonsense. It is just as easy and as difficult now to get good servants as it ever was.[1] You may have them, as you may have pines and peaches, for the growing, or you may even buy them good, if you can persuade the good growers to spare you them off their walls; but you cannot get them by political economy and the law of supply and demand.

There are broadly two ways of making good servants; the first, a sound, wholesome, thoroughgoing slavery—which was the heathen way, and no bad one neither, provided you understand that to make real "slaves" you must make yourself a real "master" (which is not easy). The second is the Christian's way: "whoso delicately bringeth up his servant from a child, shall have him become his son at the last."[2] And as few people want their servants to become their sons, this is not a way to their liking. So that, neither having courage or self-discipline enough on the one hand to make themselves nobly dominant after the heathen fashion, nor tenderness or justice enough to make themselves nobly protective after the Christian, the present public thinks to manufacture servants bodily out of powder and hay-stuffing—mentally by early instillation of Catechism and other mechanico-religious appliances—and economically, as you helplessly suggest, by the law of supply

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[1] The article, after commenting on "the good old times," remarked that it is now "a social fact, that the hardest thing in the world to find is a good servant."

[2] "He that delicately bringeth up his servant from a child, shall have him become his son at the length."—Proverbs xxix. 21.

and demand,[1] with such results as we all see, and most of us more or less feel, and shall feel daily more and more to our cost and selfish sorrow.

Sir, there is only only one way to have good servants ; that is, to be worthy of being well served. All nature and all humanity will serve a good master, and rebel against an ignoble one. And there is no surer test of the quality of a nation than the quality of its servants, for they are their masters' shadows, and distort their faults in a flattened mimicry. A wise nation will have philosophers in its servants' hall ; a knavish nation will have knaves there ; and a kindly nation will have friends there. Only let it be remembered that "kindness" means as with your child, so with your servant, not indulgence, but care.—I am, Sir, seeing that you usually write good sense, and "serve" good causes, your servant to command.

J. RUSKIN. [2]

DENMARK HILL, *Sept.* 2.

[From "The Daily Telegraph," September 7, 1865.]

DOMESTIC SERVANTS—EXPERIENCE.

To the Editor of "The Daily Telegraph."

SIR : I thank you much for your kind insertion of my letter, and your courteous and graceful answer to it. Others will thank you also ; for your suggestions are indeed much more

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[1] "We have really," ran the article, "no remedy to suggest ; the evil seems to be curable only by some general distress which will drive more people into seeking service, and so give employers a greater choice. At present the demand appears to exceed the supply, and servants are careless about losing their places through bad behavior.

[2] To this letter the Daily Telegraph of September 6 replied by a leader, in which, whilst expressing itself alive to "the sympathy for humanity and appreciation of the dignity which may be made to underlie all human relations," displayed by Mr. Ruskin, it complained that he had only shown "how to cook the cook when we catch her," and not how to catch her. After some detailed remarks on the servants of the day, which seemed "to be more *ad rem* than Mr. Ruskin's eloquent axioms," it concluded by expressing a hope "that he would come down

ad rem than my mere assertions of principle; but both are necessary. Statements of practical difficulty, and the immediate means of conquering it, are precisely what the editor of a powerful daily journal is able to give; but he cannot give them justly if he ever allow himself to lose sight of the eternal laws which in their imperative bearings manifest themselves more clearly to the retired student of human life in the phases of its history. My own personal experience—if worth anything—has been simply that wherever I myself knew how a thing should be done, and was resolved to have it done, I could always get subordinates, if made of average good human material, to do it, and that, on the whole, cheerfully, thoroughly, and even affectionately; and my wonder is usually rather at the quantity of service they are willing to do for me, than at their occasional indolences, or fallings below the standard of seraphic wisdom and conscientiousness. That they *shall* be of average human material, it is, as you wisely point out, every householder's business to make sure. We cannot choose our relations, but we can our servants; and what sagacity we have and knowledge of human nature cannot be better employed. If your house is to be comfortable, your servants' hearts must be sound, as the timber and stones of its walls; and there must be discretion in the choice, and time allowed for the "settling" of both. The luxury of having pretty servants must be paid for, like all luxuries, in the penalty of their occasional loss; but I fancy the best sort of female servant is generally in aspect and general qualities like Sydney Smith's "Bunch,"[1] and a very retainable creature.

from the clouds of theory, and give to a perplexed public a few plain, workable instructions how to get hold of good cooks and maids, coachmen and footmen."—Mr. Ruskin replies to it, and to a large amount of further correspondence on the subject, in the next two letters in the Daily Telegraph.

[1] "A man-servant was too expensive; so I caught up a little garden-girl, made like a milestone, put a napkin in her hand, christened her Bunch, and made her my butler. The girls taught her to read, Mrs. Sydney to wait, and I undertook her morals; Bunch became the best butler in the county."—Sydney Smith's Memoirs (vol. i. p. 207), where several other anecdotes of Bunch are given.

And for the rest, the dearth of good service, if such there be, may perhaps wholesomely teach us that, if we were all a little more in the habit of serving ourselves in many matters, we should be none the worse or the less happy.

I am, Sir, yours, etc.,

DENMARK HILL, *Sept.* 6. J. RUSKIN.

[From "The Daily Telegraph," September 18, 1865.]

DOMESTIC SERVANTS: SONSHIP AND SLAVERY.

To the Editor of "The Daily Telegraph."

SIR: I have been watching the domestic correspondence in your columns with much interest, and thought of offering you a short analysis of it when you saw good to bring it to a close,[1] and perhaps a note or two of my own experience, being somewhat conceited on the subject just now, because I have a gardener who lets me keep old-fashioned plants in the greenhouse, understands that my cherries are grown for the blackbirds, and sees me gather a bunch of my own grapes without making a wry face. But your admirable article of yesterday causes me to abandon my purpose; the more willingly, because among all the letters you have hitherto published there is not one from any head of a household which contains a complaint worth notice. All the masters or mistresses whose letters are thoughtful or well written say they get on well enough with their servants; no part has yet been taken in the discussion by the heads of old families. The servants' letters, hitherto, furnish the best data; but the better class of servants are also silent, and must remain so. Launce, Grumio, or Fairservice[2] may have something to say for themselves; but you will hear nothing from Old Adam nor from carefu'

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[1] In the "admirable article" of September 15, in which the main features of the voluminous correspondence received by the Daily Telegraph on the subject were shortly summed up.

[2] Fairservice is mentioned in Mr. Ruskin's discussion of parts of the Antiquary in "Fiction, Fair and Foul" (Nineteenth Century, June, 1880) as an "example of innate evil, unaffected by external influences."

Mattie. One proverb from Sancho, if we could get it, would settle the whole business for us; but his master and he are indeed "no more." I would have walked down to Dulwich to hear what Sam Weller had to say; but the high-level railway went through Mr. Pickwick's parlor two months ago, and it is of no use writing to Sam, for, as you are well aware, he is no penman. And, indeed, Sir, little good will come of any writing on the matter. "The cat will mew, the dog will have his day." You yourself, excellent as is the greater part of what you have said, and to the point, speak but vainly when you talk of "probing the evil to the bottom." This is no sore that can be probed, no sword nor bullet wound. This is a plague spot. Small or great, it is in the significance of it, not in the depth, that you have to measure it. It is essentially bottomless, cancerous; a putrescence through the constitution of the people is indicated by this galled place. Because I know this thoroughly, I say so little, and that little, as your correspondents think, who know nothing of me, and as you say, who might have known more of me, unpractically. Pardon me, I am no seller of plasters, nor of ounces of civet. The patient's sickness is his own fault, and only years of discipline will work it out of him. That is the only really "practical" saying that can be uttered to him. The relation of master and servant involves every other—touches every condition of moral health through the State. Put that right, and you put all right; but you will find it can only come ultimately, not primarily, right; you cannot begin with it. Some of the evidence you have got together is valuable, many pieces of partial advice very good. You need hardly, I think, unless you wanted a type of British logic, have printed a letter in which the writer accused (or would have accused, if he had possessed Latinity enough) all London servants of being thieves because he had known one robbery to have been committed by a nice-looking girl.[1] But on the whole there is

[1] This refers to a letter in which the writer gave an account of a robbery by a housemaid, and, drawing from her conduct the moral "put not your trust in London servants," concluded by signing his letter," "Ab *hoc* disce omnes."

much common-sense in the letters; the singular point in them all, to my mind, being the inapprehension of the breadth and connection of the question, and the general resistance to, and stubborn rejection of, the abstract ideas of sonship and slavery, which include whatever is possible in wise treatment of servants. It is very strange to see that, while everybody shrinks at abstract suggestions of there being possible error in a book of Scripture,[1] your sensible English housewife fearlessly rejects Solomon's opinion when it runs slightly counter to her own, and that not one of your many correspondents seems ever to have read the Epistle to Philemon. It is no less strange that while most English boys of ordinary position hammer through their Horace at one or other time of their school life, no word of his wit or his teaching seems to remain by them: for all the good they get out of them, the Satires need never have been written. The Roman gentleman's account of his childhood and of his domestic life possesses no charm for them: and even men of education would sometimes start to be reminded that his "*noctes cœnæque Deum!*" meant supping with his merry slaves on beans and bacon. Will you allow me, on this general question of liberty and slavery, to refer your correspondents to a paper of mine touching closely upon it, the leader in the *Art-Journal* for July last? and to ask them also to meditate a little over the two beautiful epitaphs on Epictetus and Zosima, quoted in the last paper of the *Idler*?[2]

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[1] The last volume of Bishop Colenso's work on "The Pentateuch and Book of Joshua critically examined" was published in the April of the year in which these letters were written, and his deposition by the Bishop of Capetown had but recently been reversed by the Privy Council. It is to the discussion aroused by his book that Mr. Ruskin indirectly refers.

[2] The leader in the Art-Journal is Chapter vi. of The Cestus of Aglaia, where "the infinite follies of modern thought, centred in the notion that liberty is good for a man, irrespectively of the use he is likely to make of it," are discussed at some length. The epitaphs quoted are not in the Idler itself, but in the Essay on Epitaphs printed at the end of some editions of it.

"I, Epictetus, was a slave; and sick in body, and wretched in poverty; and beloved by the gods."

"Zosima, who while she lived was a slave only in her body, has now found deliverance for that also."

How might we, over many an "independent" Englishman, reverse this last legend, and write—

"This man, who while he lived was free only in his body, has now found captivity for that also."

I will not pass without notice—for it bears also on wide interests—your correspondent's question, how my principles differ from the ordinary economist's view of supply and demand.[1] Simply in that the economy I have taught, in opposition to the popular view, is the science which not merely ascertains the relations of existing demand and supply, but determines what *ought* to be demanded and what *can* be supplied. A child demands the moon, and, the supply not being in this case equal to the demand, is wisely accommodated with a rattle; a footpad demands your purse, and is supplied according to the less or more rational economy of the State, with that or a halter; a foolish nation, not able to get into its head that free trade does indeed mean the removal of taxation from its imports, but not of supervision from them, demands unlimited foreign beef, and is supplied with the cattle murrain and the like. There may be all manner of demands, all manner of supplies. The true political economist regulates these; the false political economist leaves them to be regulated by (not Divine) Providence. For, indeed, the largest final demand anywhere reported of, is that of hell; and the supply of it (by the broad-gauge line) would be very nearly equal to the demand at this day, unless there were here and there a swineherd or two who could keep his pigs out of sight of the lake.

Thus in this business of servants everything depends on what sort of servant you at heart wish for or "demand." If

[1] This refers to a letter signed "W. B." in the Daily Telegraph of September 12.

for nurses you want Charlotte Winsors, they are to be had for money; but by no means for money, such as that German girl who, the other day, on her own scarce-floating fragment of wreck, saved the abandoned child of another woman, keeping it alive by the moisture from her lips.[1] What kind of servant do you want? It is a momentous question for you yourself—for the nation itself. Are we to be a nation of shopkeepers, wanting only shop-boys; or of manufacturers, wanting only hands; or are there to be knights among us, who will need squires—captains among us, needing crews? Will you have clansmen for your candlesticks, or silver plate? Myrmidons at your tents, ant-born, or only a mob on the Gillies' Hill? Are you resolved that you will never have any but your inferiors to serve you, or shall Enid ever lay your trencher with tender little thumb, and Cinderella sweep your hearth, and be cherished there? It *might* come to that in time, and plate and hearth be the brighter; but if your servants are to be held your inferiors, at least be sure they *are* so, and that you are indeed wiser, and better-tempered, and more useful than they. Determine what their education ought to be, and organize proper servants' schools, and there give it them. So they will be fit for their position, and will do honor to it, and stay in it: let the masters be as sure they do honor to theirs, and are as willing to stay in that. Remember that every people which gives itself to the pursuit of riches, invariably, and of necessity, gets the scum uppermost in time, and is set by the genii, like the ugly bridegroom in the Arabian Nights, at its own door with its heels in the air, showing its shoe-soles instead of a Face. And the reversal is a serious matter, if reversal be even possible, and it comes right end uppermost again, instead of to conclusive Wrong end.

I suppose I am getting unpractical again. Well, here is one practical morsel, and I have done. One or two of your correspondents have spoken of the facilities of servants for

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[1] Charlotte Winsor was at this time under sentence of death for the murder of a child, which had been entrusted to her charge. I have been unable to verify the anecdote of her heroic anti-type.

leaving their places. Drive that nail home, Sir. A large stray branch of the difficulty lies there. Many and many a time I have heard Mr. Carlyle speak of this, and too often I have felt it myself as one of the evils closely accompanying the fever of modern change in the habits and hopes of life. My own architectural work drives me to think of it continually. Round every railroad station, out of the once quiet fields, there bursts up first a blotch of brick-fields, and then of ghastly houses, washed over with slime into miserable fineries of cornice and portico. A gentleman would hew for himself a log hut, and thresh for himself a straw bed, before he would live in such; but the builders count safely on tenants—people who know no quietness nor simplicity of pleasure, who care only for the stucco, and lodge only in the portico, of human life—understanding not so much as the name of House or House-*Hold*. They and their servants are always "bettering themselves" divergently.

You will do good service at least in teaching any of these who will listen to you, that if they can once make up their minds to a fixed state of life, and a fixed income, and a fixed expenditure—if they can by any means get their servants to stay long enough with them to fit into their places and know the run of the furrows—then something like service and mastership, and fulfilment of understood and reciprocal duty, may become possible; no otherwise. I leave this matter to your better handling, and will trespass on your patience no more. Only, as I think you will get into some disgrace with your lady correspondents for your ungallant conclusions respecting them [1]—which I confess surprised me a little, though I might have been prepared for it if I had remembered what order the husband even of so good a housewife as Penelope was obliged

[1] The "admirable article" which had closed the discussion advised mistresses to resemble those of the good old days, and to deserve good servants, if they wished to secure them. It, somewhat inconsistently with the previous articles, declared that the days of good service would not be found altogether past, if it was remembered that by derivation "domestic" meant "homelike," and "family" one's servants, not one's children.

to take with some of her female servants after prolonged absence,—I have translated a short passage of Xenophon's Economics [1] for you, which may make your peace if you will print it. I wish the whole book were well translated; meantime, your lady readers must be told that this part of a Greek country gentleman's account of the conversation he had with his young wife (a girl of fifteen only), a little while after their marriage, when "she had got used to him," and was not frightened at being spoken gravely to. First they pray together; and then they have a long happy talk, of which this is the close:

"But there is one of the duties belonging to you," I said, "which perhaps will be more painful to you than any other, namely, the care of your servants when they are ill." "Nay," answered my wife, "that will be the most pleasing of all my duties to me, if only my servants will be grateful when I minister rightly to them, and will love me better." And I, pleased with her answer, said, "Indeed, lady, it is in some such way as this that the queen of the hive is so regarded by her bees, that, if she leave the hive, none will quit her, but all will follow her." Then she answered, "I should wonder if this office of leader were not yours rather than mine, for truly my care and distribution of things would be but a jest were it not for your inbringing." "Yes," I said, "but what a jest would my inbringing be if there were no one to take care of what I

[1] See The Economist of Xenophon, since (1875) translated and published in the "Bibliotheca Pastorum," edited by Mr. Ruskin (vol. i. p. 50, chap. vii. § 37–43). Mr. Ruskin in his preface to the volume speaks of the book as containing "first, a faultless definition of wealth" . . . "secondly, the most perfect ideal of kingly character and kingly government given in literature." . . . . and "thirdly, the ideal of domestic life." It may be interesting to note an earlier and quaint estimate of the work, given in "Xenophon's Treatise of Householde—imprinted at London, in Fleet Street, by T. Berthelet, 1534," where the dialogue is described as "ryght counnyngly translated out of the Greke tongue into Englysshe by Gentian Hervet at the desyre of Mayster Geffrey Pole, whiche boke for the welthe of this realme I deme very profitable to be red."

brought. Do not you know how those are pitied of whom it is fabled that they have always to pour water into a pierced vessel?" "Yes; and they *are* unhappy, if in truth they do it," said she. "Then also," I said, "remember your other personal cares. Will all be sweet to you when, taking one of your maidens who knows not how to spin, you teach her, and make her twice the girl she was; or one who has no method nor habit of direction, and you teach her how to manage a house, and make her faithful and mistress-like and every way worthy, and when you have the power of benefiting those who are orderly and useful in the house, and of punishing any one who is manifestly disposed to evil? But what will be sweetest of all, if it may come to pass, will be that you should show yourself better even than *me*, and so make me your servant also: so that you need not fear in advancing age to be less honored in my house; but may have sure hope that in becoming old, by how much more you have become also a noble fellow-worker with me, and joint guardian of our children's possessions, by so much shall you be more honored in my household. For what is lovely and good increases for all men—not through fairness of the body, but through strength and virtue in things pertaining to life. And this is what I remember chiefly of what we said in our first talk together."

I am, Sir, your faithful servant,

J. RUSKIN.

DENMARK HILL, *Sept.* 16.

[From "The Daily Telegraph," October 17, 1865.]

MODERN HOUSES.

To the Editor of "The Daily Telegraph."

SIR: I trust you will hold the very able and interesting letter from "W. H. W.,"[1] which you publish to-day, excuse

[1] The letter of "W. H. W." commenced by stating that the writer had "waited till the discussion . . . . about domestic servants was brought to a close to make a few remarks on a subject touched on in Mr. Ruskin's last letter—domestic architecture." It then gave a "graphic description" of "W. H. W.'s" own modern villa and its miseries, and concluded by asking Mr. Ruskin if nothing could be done!

enough for my briefly trespassing on your space once more. Indeed, it has been a discomfort to me that I have not yet asked the pardon of your correspondent, "A Tenant, not at will" (Sept. 21),[1] for the apparent discourtesy of thought of which he accused me. He need not have done so: for although I said "a gentleman would hew for himself a log hut" rather than live in modern houses, I never said he would rather abandon his family and his business than live in them; and your correspondent himself, in his previously written letter, had used precisely the same words. And he must not suspect that I intend to be ironical in saying that the prolonged coincidence of thought and word in the two letters well deserves the notice of your readers, in the proof it gives of the strength and truth of the impression on both minds. "W. H. W.'s" graphic description of his house is also sorrowfully faithful to the facts of daily experience; and I doubt not that you will soon have other communications of the same tenor, and all too true.

I made no attempt to answer "A Tenant, not at will," because the subject is much too wide for any detailed treatment in a letter; and you do not care for generalizations of mine. But I am sure your two correspondents, and the large class of sufferers which they represent, would be very sincerely grateful for some generalizations of yours on this matter. For, Sir, surely of all questions for the political economist, this of put-

[1] "A Tenant, not at will" had written to point out the coincidence that he had, before the publication of Mr. Ruskin's third letter, himself begun a letter to the Daily Telegraph on the subject of houses, in parts of which, strangely enough, he had used expressions very similar to those of Mr. Ruskin (see *ante*, pp. 144–8). He had described his modern suburban villa as "one of an ugly mass of blossoms lately burst forth from the parent trunk—a brickfield;" and declared that if it were not that people would think him mad, he "would infinitely rather live in a log hut of his own building" than in a builder's villa. He concluded by saying that all the houses were the same, and that therefore, until Mr. Ruskin could point out honest-built dwellings neglected while the "villas" were all let, it was not quite fair of him to assume that "suburban villains" utterly wanted the true instinct of gentlemen which would lead to the preference of log huts to plaster palaces.

ting good houses over people's heads is the closest and simplest. The first question in all economy, practically as well as etymologically, must be this, of lodging. The "Eco" must come before the "Nomy." You must have a house before you can put anything into it; and preparatorily to laying up treasure, at the least dig a hole for it. Well, Sir, here, as it seems to my poor thinking, is a beautiful and simple problem for you to illustrate the law of demand and supply upon. Here you have a considerable body of very deserving persons "demanding" a good and cheap article in the way of a house. Will you or any of your politico-economic correspondents explain to them and to me the Divinely Providential law by which, in due course, the supply of such cannot but be brought about for them?

There is another column in your impression of to-day to which, also, I would ask leave to direct your readers' attention—the 4th of the 3d page; and especially, at the bottom of it, Dr. Whitmore's account of Crawford Place,[1] and his following statement that it is "a kind of property constituting a most profitable investment;" and I do so in the hope that you will expand your interpretation of the laws of political economy so far as to teach us how, by their beneficent and inevitable operation, good houses must finally be provided for the classes who live in Crawford Place, and such other places; and, without necessity of eviction, also for the colliers of Cramlington (*vide* 2d column of the same 3d page).[2] I have,

[1] The account consisted of a report presented by Dr. Whitmore, as Metropolitan Officer of Health to the district, to the Marylebone Representative Council. Describing the miseries of Crawford Place, which was left in an untenantable condition, while the landlords still got high rents for it, he added that "property of this description, let out in separate rooms to weekly tenants, constitutes a most profitable investment," according to the degree of flinty determination exercised in collecting the rents.

[2] This alludes to an account of the position of the Cramlington colliers after seventeen days of strike. The masters attempted to evict the pitmen from their houses, an attempt which the pitmen met partly by serious riot and resistance, and partly by destroying the houses they were forced to leave.

indeed, my own notions on the subject, but I do not trouble you with them, for they are unfortunately based on that wild notion of there being a "just" price for all things, which you say in your article of Oct. 10, on the Sheffield strikes, "has no existence but in the minds of theorists."[1] The *Pall Mall Gazette*, with which journal I have already held some discussion on the subject, eagerly quoted your authority on its side, in its impression of the same evening; nor do I care to pursue the debate until I can inform you of the continuous result of some direct results which I am making on my Utopian principles. I have bought a little bit of property of the Crawford Place description, and mending it somewhat according to my notions, I make my tenants pay me what I hold to be a "just" price for the lodging provided. That lodging I partly look after, partly teach the tenants to look after for themselves; and I look a little after them, as well as after the rents. I do not mean to make a highly profitable investment of their poor little rooms; but I do mean to sell a good article, in the way of house room, at a fair price; and hitherto my customers are satisfied, and so am I.[2]

In the mean time, being entirely busy in other directions, I must leave the discussion, if it is to proceed at all, wholly between you and your readers. I will write no word more till I see what they all have got to say, and until you yourself have explained to me, in its anticipated results, the working—as regards the keeping out of winter and rough weather—of the principles of Non-iquity (I presume that is the proper politico-economic form for the old and exploded word Iniquity); and so I remain, Sir, yours, etc.,

J. Ruskin.

Denmark Hill, *Oct.* 16.

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[1] "Such a thing as a 'just price,' either for labor or for any other commodity, has, with all submission to Mr. Ruskin, no existence save in the minds of theorists." (Daily Telegraph, Oct. 10, quoted by the *Pall Mall* in its "Epitome of the Morning Papers" on the same day.) The discussion with the Gazette consisted of the "Work and Wages" letters (see *ante*, pp. 55 *seqq.*).

[2] See Fors Clavigera, 1877, Letter 78, Notes and Correspondence, p. 54.

III.—ROMAN INUNDATIONS.

[From "The Daily Telegraph," January 12, 1871. Also reprinted in "Fors Clavigera," 1873, Letter xxxiii., vol. ii., p. 75.]

A KING'S FIRST DUTY.

To the Editor of "The Daily Telegraph."

SIR: May I ask you to add to your article on the inundation of the Tiber some momentary invitation to your readers to think with Horace rather than to smile with him?

In the briefest and proudest words he wrote of himself he thought of his native land chiefly as divided into the two districts of violent and scanty waters:

> "Dicar, qua violens obstrepit Aufidus,
> Et qua, pauper aquæ, Daunus agrestium
> Regnavit populorum." [1]

Now the anger and power of that "tauriformis Aufidus" is precisely because "regna Dauni præfluit"—because it flows past the poor kingdoms which it should enrich. Stay it there, and it is treasure instead of ruin. And so also with Tiber and Eridanus. They are so much gold, at their sources—they are so much death, if they once break down unbridled into the plains.

At the end of your report of the events of the inundation, it is said that the King of Italy expressed "an earnest desire to do something, as far as science and industry could effect it, to prevent or mitigate inundations for the future."

Now science and industry can do, not "something," but everything, and not merely to mitigate inundations—and,

[1] On December 27 there was a disastrous inundation of the Tiber, and a great part of Rome was flooded. The Daily Telegraph in its leading article of Jan. 10, 1871, on the subject, began by quoting from the "very neatest," "sparkling," "light-hearted" ode of Horace, "Jam satis terris nivis" (Horace, Odes, i. 2). The quotations in the letter are from Odes iv. 14, 25, and from the celebrated ode beginning "Exegi monumentum ære perennius" (Odes, iii. 30).

deadliest of inundations, because perpetual, maremmas—but to change them into national banks instead of debts.

The first thing the King of any country has to do is to manage the streams of it.

If he can manage the streams, he can also the people ; for the people also form alternately torrent and maremma, in pestilential fury or pestilential idleness. They also will change into living streams of men, if their Kings literally "lead them forth beside the waters of comfort." Half the money lost by this inundation of Tiber, spent rightly on the hill-sides last summer, would have changed every wave of it into so much fruit and foliage in spring where now there will be only burning rock. And the men who have been killed within the last two months, and whose work and the money spent in doing it, have filled Europe with misery which fifty years will not efface,[1] had they been set at the same cost to do good instead of evil, and to save life instead of destroying it, might, by this 10th of January, 1871, have embanked every dangerous stream at the roots of the Rhine, the Rhone, and the Po, and left to Germany, to France, and to Italy an inheritance of blessing for centuries to come—they and their families living all the while in brightest happiness and peace. And now! Let the Red Prince look to it; red inundation bears also its fruit in time.

I am, Sir, your obedient servant,

Jan. 10. JOHN RUSKIN.

[From "The Pall Mall Gazette," January 19, 1871.]

A NATION'S DEFENCES.

To the Editor of "The Pall Mall Gazette."

SIR : The letter to which you do me the honor to refer, in your yesterday's article on the Tiber, entered into no detail,[2]

[1] This letter, it will be noticed, was written during the bombardment of Paris in the Franco-Prussian war.

[2] The Pall Mall Gazette had quoted part of the preceding letter, and had spoken of "a remedy which Mr. Ruskin himself appears to contemplate, though he describes it in rather a nebulous manner."

because I had already laid the plans spoken of before the Royal Institution in my lecture there last February;[1] in which my principal object was to state the causes of the incalculably destructive inundations of the Rhone, Toccia, and Ticino, in 1868; and to point out that no mountain river ever was or can be successfully embanked in the valleys; but that the rainfall must be arrested on the high and softly rounded hill surfaces, before it reaches any ravine in which its force can be concentrated. Every mountain farm ought to have a dike about two feet high—with a small ditch within it—carried at intervals in regular, scarcely perceptible incline across its fields; with discharge into a reservoir large enough to contain a week's maximum rainfall on the area of that farm in the stormiest weather—the higher uncultivated land being guarded over larger spaces with bolder embankments. No drop of water that had once touched hill ground ought ever to reach the plains till it was wanted there: and the maintenance of the bank and reservoir, once built, on any farm, would not cost more than the keeping up of its cattle-sheds against chance of whirlwind and snow.

The first construction of the work would be costly enough; and, say the Economists, "would not pay." I never heard of any National Defences that did! Presumably, we shall have to pay more income-tax next year, without hope of any dividend on the disbursement. Nay—you must usually wait a

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[1] "A Talk respecting Verona and its Rivers," February 4, 1870. (See Proceedings of the Royal Institution, vol. p. 55. The report of the lecture was also printed by the Institution in a separate form; pp. 7.) The lecture concluded thus: "Further, without in the least urging my plans impatiently on any one else, I know thoroughly that this [the protection against inundations] which I have said *should* be done, *can* be done, for the Italian rivers, and that no method of employment of our idle able-bodied laborers would be in the end more remunerative, or in the beginnings of it more healthful and every way beneficial than, with the concurrence of the Italian and Swiss governments, setting them to redeem the valleys of the Ticino and the Rhone. And I pray you to think of this; for I tell you truly—you who care for Italy—that both her passions and her mountain streams are noble; but that her happiness depends not on the liberty, but the right government of both."

year or two before you get paid for any great work, even when the gain is secure. The fortifications of Paris did not pay, till very lately; they are doubtless returning cent. per cent. now, since the kind of rain falls heavy within them which they were meant to catch. Our experimental embankments against (perhaps too economically cheap) shot at Shoeburyness are property which we can only safely "realize" under similarly favorable conditions. But my low embankments would not depend for their utility on the advent of a hypothetical foe, but would have to contend with an instant and inevitable one; yet with one who is only an adversary if unresisted; who, resisted, becomes a faithful friend—a lavish benefactor.

Give me the old bayonets in the Tower, if I can't have anything so good as spades; and a few regiments of "volunteers" with good Engineer officers over them, and, in three year's time, an Inundation of Tiber, at least, shall be Impossible.

I am, Sir, your faithful servant.

JOHN RUSKIN.

DENMARK HILL, *Jan.* 19, 1871.

[From "The Daily Telegraph," February 4, 1871.]

THE WATERS OF COMFORT.

To the Editor of "The Daily Telegraph."

SIR: I did not see your impression of yesterday until too late to reply to the question of your correspondent in Rome;[1] and I am hurried to-day; but will send you to-morrow a precise statement of what I believe can be done in the Italian uplands. The simplest and surest beginning would be the purchase, either by the Government or by a small company formed in Rome, of a few plots of highland in the Apennines,

[1] The correspondent of the Daily Telegraph had written that Mr. Ruskin's letter of January 10 had been translated into Italian and had set people thinking, and he asked Mr. Ruskin to write and state the case once more.

now barren for want of water, and valueless; and the showing what could be made of them by terraced irrigation such as English officers have already introduced in many parts of India. The Agricultural College at Cirencester ought, I think, to be able to send out two or three superintendents, who would direct rightly the first processes of cultivation, choosing for purchase good soil in good exposures, and which would need only irrigation to become fruitful; and by next summer, if not by the end of this, there would be growing food for men and cattle where now there is only hot dust; and I do not think there would be much further question "where the money was to come from." The real question is only, "Will you *pay* your money in advance for what is actually new land added to the kingdom of living Italy?" or "Will you pay it under call from the Tiber every ten or twenty years as the price of the work done by the river for your destruction?"

I am, Sir, your faithful servant,

J. RUSKIN.

OXFORD, *Feb.* 3.

[From "The Daily Telegraph," February 7, 1871.]

THE STREAMS OF ITALY.[1]

To the Editor of "The Daily Telegraph."

SIR: In this month, just thirty years ago, I was at Naples, and the days were nearly as dark as these, but with clouds and rain, not fog. The streets leading down from St. Elmo became beds of torrents. A story went about—true or not I do not know, but credible enough—of a child's having been carried off by the gutter and drowned at the bottom of the hill. At last came indeed what, in those simple times, people thought a serious loss of life. A heavy storm burst one night above a village on the flank of the Monte St. Angelo, a mile or two south of Pompeii. The limestones slope steeply there under about three feet of block earth. The water peeled a

[1] See the date of letter on a landslip near Giagnano (vol i. p. 197.)

piece of the rock of its earth, as one would peel an orange, and brought down three or four acres of the good soil in a heap on the village at midnight, driving in the upper walls, and briefly burying some fourteen or fifteen people in their sleep—and, as I say, in those times there was some talk even about fourteen or fifteen. But the same kind of thing takes place, of course, more or less, among the hills in almost every violent storm, generally with the double result of ruining more ground below than is removed from the rocks above; for the frantic streams mostly finish their work with a heap of gravel and blocks of stone like that which came down the ravine below the glacier of Greppond about ten years ago, and destroyed, for at least fifty years to come, some of quite the best land in Chamouni.

In slower, but ceaseless process of ruin, the Po, Arno, and Tiber steadily remove the soil from the hills, and carry it down to their deltas. The Venetians have contended now for a thousand years in vain even with the Brenta and the minor streams that enter their lagoons, and have only kept their canals clear by turning the river south to Malamocco with embankments which have unhealthily checked the drainage of all the flat country about Padua.

And this constant mischief takes place, be it observed, irrespective of inundation. All that Florence, Pisa, and Rome have suffered and suffer periodically from floods is so much mischief added to that of increasing maremmas, spoiled harborages, and lost mountain-ground.

There is yet one further evil. The snow on the bared rock slips lower and melts faster; snows which in mossy or grass ground would have lain long, and furnished steadily flowing streams far on into summer, fall or melt from the bare rock in avalanche and flood, and spend in desolation in a few days what would have been nourishment for half the year. And against all this there are no remedies possible in any sudden or external action. It is the law of the Heaven which sends flood and food, that national prosperity can only be achieved by national forethought and unity of purpose.

In the year 1858 I was staying the greater part of the sum-

mer at Bellinzona, during a draught as harmful as the storms of ten years later. The Ticino sank into a green rivulet; and not having seen the right way to deal with the matter, I had many a talk with the parroco of a little church whose tower I was drawing, as to the possibility of setting his peasants to work to repair the embankment while the river was low. But the good old priest said, sorrowfully, the peasants were too jealous of each other, that no one would build anything or protect his own ground for fear his work would also benefit his neighbors.

But the people of Bellinzona are Swiss, not Italians. I believe the Roman and Sienese races, in different ways, possess qualities of strength and gentleness far more precious than the sunshine and rain upon their mountains, and, hitherto, as cruelly lost. It is in them that all the real power of Italy still lives; it is only by them, and by what care, and providence, and accordant good-will ever be found in them, that the work is to be done, not by money; though, if money were all that is needed, do we in England owe so little to Italy of delight that we cannot so much as lend her spades and pick-axes at her need? Would she trust us? Would her government let us send over some engineer officers and a few sappers and miners, and bear, for a time, with an English instead of a French "occupation" of her barrenest hills?

But she does not need us. Good engineers she has, and has had many since Leonardo designed the canals of Lombardy. Agriculturists she has had, I think, among her gentlemen a little before there were gentlemen farmers in England; something she has told us of agriculture, also, pleasantly by the reeds of Mincio and among the apple-blossoms wet with Arno. Her streams have learned obedience before now: Fonte Branda and the Fountain of Joy flow at Sienna still; the rivulets that make green the slopes of Casentino may yet satisfy true men's thirst. "Where is the money to come from?" Let Italy keep her souls pure, and she will not need to alloy her florins. The only question for her is whether still the mossy rock and the "rivus aquæ" are "in rotis" or rather the race-course and the boulevard—the curses of England and of France.

At all events, if any one of the Princes of Rome will lead, help enough will follow to set the work on foot, and show the peasants, in some narrow district, what can be done. Take any arid piece of Apennine towards the sources of the Tiber; let the drainage be carried along the hill-sides away from the existing water-courses; let cisterns, as of old in Palestine, and larger reservoirs, such as we now can build, be established at every point convenient for arrest of the streams; let channels of regulated flow be established from these over the tracts that are driest in summer; let ramparts be carried, not along the river banks, but round the heads of the ravines, throwing the water aside into lateral canals; then terrace and support the looser soil on all the steeper slopes; and the entire mountain side may be made one garden of orange and vine and olive beneath; and a wide blossoming orchard above; and a green highest pasture for cattle, and flowers for bees—up to the edge of the snows of spring.

I am, Sir, your faithful servant,

JOHN RUSKIN.

OXFORD, *Feb.* 3.

[From the "Pall Mall Gazette," December 28, 1871.]

THE STREETS OF LONDON.

To the Editor of the "Pall Mall Gazette."

SIR: I have been every day on the point of writing to you since your notice, on the 18th,[1] of the dirty state of the London streets, to ask whether any of your readers would care to know how such matters are managed in my neighbourhood. I was obliged, a few years ago, for the benefit of my health, to take a small house in one of the country towns of Utopia; and though I was at first disappointed in the climate, which indeed is no better than our own (except that there is no foul marsh air), I found my cheerfulness and ability for work greatly increased by the mere power of getting exercise pleas-

[1] Quite unimportant. It simply complained of the condition of the streets.

antly close to my door, even in the worst of the winter, when, though I have a little garden at the back of my house, I dislike going into it, because the things look all so dead: and find my walk on the whole pleasanter in the streets, these being always perfectly clean, and the wood-carving of the houses prettier than much of our indoor furniture. But it was about the streets I wanted to tell you. The Utopians have the oddest way of carrying out things, when once they begin, as far as they can go; and it occurred to them one dirty December long since, when they, like us, had only crossing-sweepers, that they might just as well sweep the whole of the street as the crossings of it, so that they might cross anywhere. Of course that meant more work for the sweepers; but the Utopians have always hands enough for whatever work is to be done in the open air;—they appointed a due number of broomsmen to every quarter of the town; and since then, at any time of the year, it is in our little town as in great Rotterdam when Dr. Brown saw it on his journey from Norwich to Colen in 1668, "the women go about in white slippers," which is pretty to see.[1] Now, Sir, it would, of course, be more difficult to manage anything like this in London, because, for one thing, in our town we have a rivulet running down every street that slopes to the river; and besides, because you have coal-dust and smoke and what not to deal with; and the habit of spitting, which is worst of all—in Utopia a man would as soon vomit as spit in the street (or anywhere else, indeed, if he could help it). But still it is certain we can at least anywhere do as much for the whole street, as we have done for the crossing: and to show that we can, I mean, on 1st January next, to take three street-sweepers into constant service; they will be the first workpeople I employ with the interest of the St. George's fund, of which I

[1] Dr. Edward Browne, the son of the author of the Religio Medici, Sir Thomas Browne. Writing to his father from Rotterdam, in 1668, he says: "The cleanenesse and neatnesse of this towne is so new unto mee, that it affoordeth great satisfaction, most persons going about the streets in white slippers."—Life and Works of Sir Thomas Browne. Pickering, 1836. Vol. i. p. 154.

shall get my first dividend this January; and, whenever I can get leave from the police and inhabitants, I will keep my three sweepers steadily at work for eight hours a day; and I hope soon to show you a bit of our London streets kept as clean as the deck of a ship of the line.[1]

I am, Sir, your faithful servant,

JOHN RUSKIN.

December 27, 1871.

IV.—EDUCATION FOR RICH AND POOR.

[From "The Pall Mall Gazette," January 31, 1868.]

TRUE EDUCATION.[2]

To the Editor of "The Pall Mall Gazette."

SIR: The letter you published yesterday from a parish schoolboy of "Sixty Years Since" at Weary-faulds (confirmed as it would be doubtless in all practical respects by testimony of English boys educated at Waverley Honour) has my hearty sympathy; but I am wearier than any tenant of Weary-faulds of seeing this subject of education always treated as if "education" only meant teaching children to write or to cipher or to

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[1] Mr. Ruskin was as good as his word, and his sweepers were at work in the following January.

[2] The Pall Mall Gazette of January 27 contained a leader on "Compulsory Education," and that of January 29 one upon a speech of the Bishop of Oxford on the same subject, made at a meeting in connection with the National Society, held at Tunbridge Wells on the preceding day. In the Gazette of January 30 appeared a letter referring to these articles, headed "Sixty Years Ago," and signed "One who has walked four miles to the Parish School." It described the writer's early home, situated in some lowland parish north of the Tweed, and divided into five or six estates, such as "Whinny-hills" and "Weary-faulds," the lairds of which were shortly called "Whinny" or "Weary" after their properties. In this primitive village, where supervision, much less compulsion, in education was never heard of, "no child grew up without learning to read," and the morals of the parish were on the whole good; the children quarrelled, but did not steal.—The reader will remember that the second title of Waverley is 'Tis Sixty Years Since.

repeat catechism. You know, Sir, as you have shown by your comments on the Bishop of Oxford's last speech on this subject, and you could not at present use your influence more beneficially than by farther showing that the real education—the education which alone should be compulsory—means nothing of the kind. It means teaching children to be clean, active, honest, and useful. All these characters can be taught, and cannot be acquired by sickly and ill-dispositioned children without being taught; but they can be untaught to any extent, by evil habit and example at home. Public schools, in which the aim was to form character faithfully, would return them in due time to their parents, worth more than their "weight in gold." That is the real answer to the objections founded on economical difficulties. Will you not make some effort, Sir, to get your readers to feel this? I am myself quite sick of saying it over and over again in vain.

I am, Sir, your faithful servant,

J. RUSKIN.

DENMARK HILL, *Jan.* 31, 1868.

[From "The Glasgow Herald," June 5, 1874. Also reprinted in "The Times" of June 6, 1874.]

THE VALUE OF LECTURES.[1]

ROME, *26th May*, 1874.

MY DEAR SIR: I have your obliging letter, but am compelled by increase of work to cease lecturing except at Oxford—and practically there also—for, indeed, I find the desire of audi-

[1] This letter was written to Mr. Chapman, of the Glasgow Athenæum Lecture Committee, in reply to a request that Mr. Ruskin would lecture at their meetings during the winter. Writing from Oxford, four years later, in answer to a similar request, Mr. Ruskin wrote as follows: "Nothing can advance art in any district of this accursed machine-and-devil driven England until she changes her mind in many things, and my time for talking is past.—Ever faithfully yours, J. Ruskin. I lecture here, but only on the art of the past." (Extract given in the Times, Feb. 12, 1878.)

ences to be *audiences only* becoming an entirely pestilent character of the age. Everybody wants to *hear*—nobody to read—nobody to think; to be excited for an hour—and, if possible, amused; to get the knowledge it has cost a man half his life to gather, first sweetened up to make it palatable, and then kneaded into the smallest possible pills—and to swallow it homœopathically and be wise—this is the passionate desire and hope of the multitude of the day.

It is not to be done. A living comment quietly given to a class on a book they are earnestly reading—this kind of lecture is eternally necessary and wholesome; your modern fire-working, smooth-downy-curry-and-strawberry-ice-and-milk-punch-altogether lecture is an entirely pestilent and abominable vanity; and the miserable death of poor Dickens, when he might have been writing blessed books till he was eighty, but for the pestiferous demand of the mob, is a very solemn warning to us all, if we would take it.[1]

God willing, I will go on writing, and as well as I can. There are three volumes published of my Oxford lectures,[2] in which every sentence is set down as carefully as may be. If people want to learn from me, let them read them or my monthly letter "Fors Clavigera." If they don't care for these, I don't care to talk to them.

Truly yours,

J. Ruskin.

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[1] The evil result on Dickens' health of his last series of readings at St. James's Hall, in the early part of 1870, scarcely four months before his death, is thus noted by Mr. Forster: "Little remains to be told that has not in it almost unmixed sorrow and pain. Hardly a day passed, while the readings went on or after they closed, unvisited by some effect or other of the disastrous excitement consequent on them."—Life of Charles Dickens, vol. iii. p. 493.

[2] Aratra Pentelici, The Eagle's Nest; and either Val d'Arno (Orpington, 1874) or Lectures on Art (Clarendon Press, 1870).

[Date and place of publication unknown.]

THE CRADLE OF ART![1]

18*th Feb.* 1876.

My dear Sir: I lose a frightful quantity of time because people won't read what I ask them to read, nor believe anything of what I tell them, and yet ask me to talk whenever they think they can take a shilling or two at the door by me. I have written fifty times, if once, that you can't have art where you have smoke; you may have it in hell, perhaps, for the Devil is too clever not to consume his own smoke, if he wants to. But you will never have it in Sheffield. You may learn something about nature, shrivelled, and stones, and iron; and what little you can see of that sort, I'm going to try and show you. But pictures, never.

Ever faithfully yours,

John Ruskin.

If for no other reason, no artist worth sixpence in a day would live in Sheffield, nor would any one who cared for pictures—for a million a year.

[From "The Sheffield Daily Telegraph," September 7, 1875.]

ST. GEORGE'S MUSEUM.[2]

Brantwood, Coniston, Lancashire.

My dear Sir: I am obliged by your note, but the work of the St. George's Company is necessarily distinct from all other. My "museum" may be perhaps nothing but a two-

[1] This letter was in answer to a request of the Sheffield Society of Artists similar to that replied to in the preceding letter.

[2] This letter was written in answer to one addressed to Mr. Ruskin by Mr. W. Bragge, F.R.G.S., who, having read in Fors Clavigera of Mr. Ruskin's intention to found the St. George's Museum at Sheffield, wrote to inform him that another museum, in which his might be incorporated, was already in course of building. It was read by Mr. Bragge at a dinner which followed the opening of Western Park to the public on September 6, 1875.

windowed garret. But it will have in it nothing but what deserves respect in art or admiration in nature. A great museum in the present state of the public mind is simply an exhibition of the possible modes of doing wrong in art, and an accumulation of uselessly multiplied ugliness in misunderstood nature. Our own museum at Oxford is full of distorted skulls, and your Sheffield ironwork department will necessarily contain the most barbarous abortions that human rudeness has ever produced with human fingers. The capitals of the iron shafts in any railway station, for instance, are things to make a man wish—for shame of his species—that he had been born a dog or a bee.

Ever faithfully yours,

J. Ruskin.

P. S.—I have no doubt the geological department will be well done, and my poor little cabinets will enable your men to use it to better advantage, but would be entirely lost if united with it.

[From "The Daily Telegraph," January 15, 1870.]

THE MORALITY OF FIELD SPORTS.

To the Editor of the "The Daily Telegraph."

Sir: As, thirty years ago,[1] I publicly expressed a strong opinion on the subject of field sports, and as with more accurate knowledge I hold the same opinion still, and more strongly —will you permit me to place the controversy between your

[1] In various parts of Modern Painters. See vol. v. p. 281. "I wish, however, the reader distinctly to understand that the expressions of reprobation of field-sports which he will find scattered through these volumes . . . . refer only to the chase and the turf; that is to say, to hunting shooting, and horse-racing, but not to athletic exercises. I have just as deep a respect for boxing, wrestling, cricketing, and rowing, as contempt of all the various modes of wasting wealth, time, land, and energy of soul, which have been invented by the pride and selfishness of men, in order to enable them to be healthy in uselessness, and get quit of the burdens of their own lives, without condescending to make themselves serviceable to others."

correspondents,[1] in which I have no time to take part, on somewhat clearer grounds.

Reprobation of fox-hunting on the ground of cruelty to the fox is entirely futile. More pain is caused to the draught-horses of London in an hour by avariciously overloading them, than to all the foxes in England by the hunts of the year; and the rending of body and heart in human death, caused by neglect, in our country cottages, in any one winter, could not be equalled by the death-pangs of any quantity of foxes.

The real evils of fox-hunting are that it wastes the time, misapplies the energy, exhausts the wealth, narrows the capacity, debases the taste, and abates the honor of the upper classes of this country; and instead of keeping, as your correspondent "Forester" supposes, "thousands from the work-house," it sends thousands of the poor, both there, and into the grave.

The athletic training given by fox-hunting is excellent; and such training is vitally necessary to the upper classes. But it ought always to be in real service to their country; in personal agricultural labor at the head of their tenantry; and in extending English life and dominion in waste regions, against the adverse powers of nature. Let them become Captains of Emigration;—hunt down the foxes that spoil the Vineyard of the World; and keep their eyes on the leading hound, in Packs of Men.

I am, Sir, your faithful servant,

DENMARK HILL, *Jan.* 14. J. RUSKIN.[2]

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[1] The correspondence originated as follows: In the Fortnightly Review of October, 1869, appeared an article against fox-hunting by Mr. E. A. Freeman, entitled, "The Morality of Field Sports," to which Mr. Anthony Trollope replied by one entitled "The Morality of Hunting," in the Fortnightly of the following December. Mr. Freeman then rejoined by two letters of considerable length, addressed to the editor of the Daily Telegraph (December 18 and 29), in whose columns some discussion of the matter had already been carried on, whilst one of its leaders had strongly supported Mr. Freeman's views. Other correspondence on the subject was still appearing in the Daily Telegraph from day to day at the time Mr. Ruskin wrote the present letter.

[2] At the annual meeting of the Society for the Prevention of Cruelty to Animals, Mr. Ruskin is reported (Daily News, July 11, 1877) to have

[From "The Daily Telegraph," December 11, 1871.]

DRUNKENNESS AND CRIME.

To the Editor of "The Daily Telegraph."

SIR: I am greatly surprised by the slightness of your article to-day on the statistics of drunkenness and the relative statistics of crime.[1]

The tables you have given, if given only in that form by Professor Leone Levi, are anything but "instructive." Liquor is not, for such purpose, to be measured only by the gallon, but by the gallon with accompanying statement of strength.

Crime is not for such purpose to be measured by the number of criminals, but by the number, with accompanying

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said that "as he was somewhat concerned in the studies of the scientific world, it might be thought that he sympathized in the resistance offered, not without some ground of reason, to some of the more enthusiastic and, he feared in some respects, exaggerated and sentimental actions of the society. He pleaded in the name of poor animals that none of them should act too much on the feeling of pity, or without making a thoroughly judicial inquiry. In looking at the report, he found part of the society's admirable evidence mixed up with sentimental tales of fiction and other means of exciting mere emotion, which had caused them to lose power with those who had the greatest influence in the prevention of the abuses which the society desired to check. The true justice of their cause lay in the relations which men had had with animals from the time when both were made. They had endeavoured to prevent cruelty to animals; they had not enough endeavoured to promote affection for animals. He thought they had had too much to do in the police courts, and not enough in the field and the cottage garden. As one who was especially interested in the education of the poor, he believed that he could not educate them on animals, but that he could educate them by animals. He trusted to the pets of children for their education just as much as to their tutors. He rejoiced in the separate organization of the Ladies' Committee, and looked to it to give full extent and power to action which would supersede all their expensive and painful disputable duties. Without perfect sympathy with the animals around them, no gentleman's education, no Christian education, could be of any possible use. In concluding, he pleaded for an expansion of the protection extended by the society to wild birds."

[1] A short leader to which special reference is unnecessary.

statement of the crime committed. Drunkenness very slightly encourages theft, very largely encourages murder, and universally encourages idleness, which is not a crime apparent in a tabular form. But, whatever results might, even by such more accurate statement, be attainable, are not material to the question at issue. Drunkenness is not the *cause* of crime in any case. It *is* itself crime in every case. A gentleman will not knock out his wife's brains when he is drunk; but it is nevertheless his duty to remain sober.

Much more is it his duty to teach his peasantry to remain sober, and to furnish them with sojourn more pleasant than the pothouse, and means of amusement less circumscribed than the pot. And the encouragement of drunkenness, for the sake of the profit on sale of drink, is certainly one of the most criminal methods of assassination for money hitherto adopted by the bravos of any age or country.

I am, Sir, your faithful servant,

JOHN RUSKIN.

DENMARK HILL, *Dec.* 9.

[From "The Pall Mall Gazette," November 4, 1872. (Also reprinted in "Fors Clavigera," Letter xlviii., p. 318, vol. ii.]

MADNESS AND CRIME.

To the Editor of "The Pall Mall Gazette."

SIR: Towards the close of the excellent article on the Taylor trial in your issue for October 31 [1] you say that people never will be, nor ought to be, persuaded, "to treat criminals simply as vermin which they destroy, and not as men who are to be punished." Certainly not, Sir! Who ever talked, or thought, of regarding criminals "simply" as anything (or innocent people either, if there be any)? But regarding criminals complexly and accurately, they are partly men, partly vermin; what is human in them you must punish—what is vermicular, abolish. Anything between—if you can find it—

[1] The trial of Taylor was for murder, and ended in his acquittal on the ground of insanity.

I wish you joy of, and hope you may be able to preserve it to society. Insane persons, horses, dogs, or cats become vermin when they become dangerous. I am sorry for darling Fido, but there is no question about what is to be done with him.

Yet, I assure you, Sir, insanity is a tender point with me. One of my best friends has just gone mad; and all the rest say I am mad myself. But if ever I murder anybody—and, indeed, there are numbers of people I should like to murder—I won't say that I ought to be hanged; for I think nobody but a bishop or a bank-director can ever be rogue enough to deserve hanging; but I particularly, and with all that is left me of what I imagine to be sound mind, request that I may be immediately shot.

I am, Sir, your obedient servant,

J. RUSKIN.

CORPUS CHRISTI COLLEGE, OXFORD,
November 2.

[From "The Daily Telegraph," December 26, 1868.]

EMPLOYMENT FOR THE DESTITUTE POOR AND CRIMINAL CLASSES.

To the Editor of "The Daily Telegraph."

SIR: Your admirable leader of to-day [1] will do great good; but it will do more if you complete it by pointing out the chief reason for the frequent failure of almsgiving in accomplishing any real benefit to the poor. No almsgiving of money is so helpful as almsgiving of care and thought; the giving of money without thought is indeed continually mischievous; but the invective of the economist against *in*discrimate charity is idle, if it be not coupled with pleading for discriminate charity, and, above all, for that charity which discerns the uses that people may be put to, and helps them by setting them to work in those services. That is the help beyond all others; find out how to make useless people useful, and let them earn their money instead of begging it. Few are so feeble as to be

[1] A Christmas article on Charity.

incapable of all occupation, none so faultful but that occupation, well chosen, and kindly compelled, will be medicine for them in soul and body. I have lately drawn up a few notes for private circulation on possible methods of employment for the poor.[1] The reasons which weighed with me in not publishing them have now ceased to exist; and in case you should think the paper worth its room in your columns, and any portion of it deserving your ratification, I send it you herewith, and remain your faithful servant,

J. RUSKIN.

DENMARK HILL, S.E., *Dec.* 24.

NOTES ON THE GENERAL PRINCIPLES OF EMPLOYMENT FOR THE DESTITUTE AND CRIMINAL CLASSES.

[For Private Circulation only. 1868. (Pp. 15, including the title-page. Printed by Strangeways & Walden, Castle Street, Leicester Square.)[2]]

THE first great fact on which all wise and enduring legislation respecting labor must be founded, is, that the character of men depends more on their occupations than on any teaching we can give them, or principles with which we can imbue them.

The employment forms the habits of body and mind, and these are the constitution of the man—the greater part of his moral or persistent nature, whatever effort, under special excitement, he may make to change or overcome them. Employment is the half, and the primal half, of education—it is the warp of it; and the fineness or the endurance of all subse-

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[1] See the following pages.

[2] There were two editions of this pamphlet. The first was entitled "First Notes on the General Principles of Employment for the Destitute and Criminal Classes. By John Ruskin, A.M. For private circulation only. 1868" (pp. 11, including the title-page. London: Strangeways & Walden, printers, Castle Street, Leicester Square). Mr. Ruskin enclosed the second edition to the Daily Telegraph, where almost the whole of the pamphlet was reprinted. The differences between the two editions consisted only in one or two additions in the second (see below, pages 321 and 324, notes.)

quently woven pattern depends wholly on its straightness and strength. And whatever difficulty there may be in tracing through past history the remoter connections of event and cause, one chain of sequence is always clear: the formation, namely, of the character of nations by their employments, and the determination of their final fate by their character. The moment and the first direction of circumstances, of decisive revolutions, often depend on accident; but their persistent course, and their consequences, depend wholly on the nature of the people. The passing of the Reform Bill by the late English Parliament[1] may have been more or less accidental: the results of the measure now rest on the character of the English people, as it has been developed by their recent interests, occupations, and habits of life. Whether as a body, they employ their new powers for good or evil will depend not on their facilities for knowledge, nor even on the general intelligence they may possess, but on the number of persons among them whom wholesome employments have rendered familiar with the duties, and temperate in their estimate of the promises of life.

But especially in passing laws respecting the treatment or employment of improvident and more or less vicious persons it is to be remembered that as men are not to be made heroes by an act of heroism, but must be brave before they can perform it, so they are not made villains by the commission of a crime, but were villains before they committed it; and that the right of public interference with their conduct begins when they begin to corrupt themselves, not merely at the moment when they have proved themselves hopelessly corrupt.

All measures of reformation are effective in exact proportion to their timeliness: partial decay may be cut away and cleansed; incipient error corrected; but there is a point at which corruption can no more be stayed, nor wandering recalled; it has been the manner of modern philanthropy to remain passive until that precise period, and to leave the rich

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[1] The reform bill of 1867. The late parliament had been dissolved on November 11, and the new one had just sat (December 10, 1868).

to perish and the foolish to stray, while it exhausted itself in frantic exertions to raise the dead and reform the dust.

The recent direction of a great weight of public opinion against capital punishment is, I think, the sign of an awakening perception that punishment is the last and worst instrument in the hands of the legislature for the prevention of crime.

The true instruments of reformation are employment and reward—not punishment. Aid the willing, honor the virtuous, and compel the idle into occupation, and there will be no need for the compelling of any into the great and last indolence of death. The beginning of all true reformation among the criminal classes depends on the establishment of institutions for their active employment, while their criminality is still unripe, and their feelings of self-respect, capacities of affection, and sense of justice not altogether quenched. That those who are desirous of employment should be always able to find it, will hardly, at the present day, be disputed; but that those who are undesirous of employment should of all persons be the most strictly compelled to it, the public are hardly yet convinced. If the damage of the principal thoroughfares in their capital city, and the multiplication of crimes more ghastly than ever yet disgraced a nominal civilization, do not convince them, they will not have to wait long before they receive sterner lessons. For our neglect of the lower orders has reached a point, at which it begins to bear its necessary fruit, and every day makes the harvest darker and more sure.[1]

The great principles by which employment should be regulated may be briefly stated as follows:

1. There being three great classes of mechanical powers at our disposal, namely, (*a*) vital muscular power; (*b*) natural mechanical power of wind, water, and electricity; and (*c*) artificially produced mechanical power; it is the first principle of economy to use all available vital power first, then the inex-

[1] The Daily Telegraph reprinted the pamphlet from this point to the end.

pensive natural forces, and only at last to have recourse to artificial power. And this, because it is always better for a man to work with his own hands to feed and clothe himself, than to stand idle while a machine works for him; and if he cannot by all the labor healthily possible to him, feed and clothe himself, then it is better to use an inexpensive machine —as a wind-mill or water-mill—than a costly one like a steam-engine, so long as we have natural force enough at our disposal. Whereas at present we continually hear economists regret that the water-powers of the cascades or streams of a country should be lost, but hardly ever that the muscular power of its idle inhabitants should be lost; and, again, we see vast districts, as the south of Provence, where a strong wind [1] blows steady all day long for six days out of seven throughout the year, without a wind-mill, while men are continually employed a hundred miles to the north, in digging fuel to obtain artificial power.

But the principal point of all to be kept in view is that in every idle arm and shoulder throughout the country there is a certain quantity of force, equivalent to the force of so much fuel; and that it is mere insane waste to dig for coal for our force, while the vital force is unused; and not only unused, but, in being so, corrupting and polluting itself. We waste our coal and spoil our humanity at one and the same instant. Therefore, whenever there is an idle arm, always save coal with it, and the stores of England will last all the longer. And precisely the same argument answers the common one about "taking employment out of the hands of the industrious laborer." Why, what is "employment" but the putting out of vital force instead of mechanical force? We are continually in search of means of strength—to pull, to hammer, to fetch, to carry; we waste our future resources to get power, while we leave all the living fuel to burn itself out in mere

[1] In order fully to utilize this natural power, we only require machinery to turn the variable into a constant velocity—no insurmountable difficulty.*

* This note was not contained in the first edition of the pamphlet, and was not reprinted by the Daily Telegraph.

pestiferous breath and production of its variously noisome forms of ashes! Clearly, if we want fire for force, we want men for force first. The industrious hands *must* have so much to do that they can do no more, or else we need not use machines to help them: then use the idle hands first. Instead of dragging petroleum with a steam-engine, put it on a canal, and drag it with human arms and shoulders. Petroleum cannot possibly be in a hurry to arrive anywhere. We can always order that and many other things time enough before we want it. So the carriage of everything which does not spoil by keeping may most wholesomely and safely be done by water-traction and sailing vessels, and no healthier work nor better discipline can men be put to than such active porterage.

2. In employing all the muscular power at our disposal, we are to make the employments we choose as educational as possible. For a wholesome human employment is the first and best method of education, mental as well as bodily. A man taught to plough, row or steer well, and a woman taught to cook properly and make dress neatly, are already educated in many essential moral habits. Labor considered as a discipline has hitherto been thought of only for criminals; but the real and noblest function of labor is to prevent crime, and not to be *Re*formatory but Formatory.

3. The third great principle of employment is, that whenever there is pressure of poverty to be met, all enforced occupation should be directed to the production of useful articles only, that is to say, of food, of simple clothing, of lodging, or of the means of conveying, distributing, and preserving these. It is yet little understood by economists, and not at all by the public, that the employment of persons in a useless business cannot relieve ultimate distress. The money given to employ riband-makers at Coventry is merely so much money withdrawn from what would have employed lace-makers at Honiton, or makers of something else, as useless, elsewhere. We *must* spend our money in some way, at some time, and it cannot at any time be spent without employing somebody. If we gamble it away, the person who wins it must spend it; if we lose it in a railroad speculation, it has gone into some one

else's pockets, or merely gone to pay navvies for making a useless embankment, instead of to pay riband or button makers for making useless ribands or buttons; we cannot lose it (unless by actually destroying it) without giving employment of some kind, and therefore, whatever quantity of money exists, the relative quantity of employment must some day come out of it; but the distress of the nation signifies that the employments given have produced nothing that will support its existence. Men cannot live on ribands, or buttons, or velvet, or by going quickly from place to place; and every coin spent in useless ornament, or useless motion, is so much withdrawn from the national means of life. Whereas every coin spent in cultivating ground, in repairing lodgings, in making necessary and good roads, in preventing danger by sea or land, and in carriage of food or fuel where they are required, is so much absolute and direct gain to the whole nation. To cultivate land round Coventry makes living easier at Honiton, and every house well built in Edinburgh makes lodgings cheaper in Glasgow and London.

4th, and lastly. Since for every idle person some one else must be working somewhere to provide him with clothes and food, and doing therefore double the quantity of work that would be enough for his own needs, it is only a matter of pure justice to compel the idle person to work for his maintenance himself. The conscription has been used in many countries to take away laborers who supported their families from their useful work, and maintain them for purposes chiefly of military display at public expense. Since this had been long endured by the most civilized nations, let it not be thought that they would not much more gladly endure a conscription which should seize only the vicious and idle already living by criminal procedures at the public expense, and which should discipline and educate them to labor, which would not only maintain themselves, but be serviceable to the commonwealth. The question is simply this: we must feed the drunkard, vagabond, and thief. But shall we do so by letting them rob us of their food, and do no work for it; or shall we give them their food in appointed quantity, and enforce their doing work

which shall be worth it, and which, in process of time, will redeem their own characters, and make them happy and serviceable members of society?[1]

The different classes of work for which bodies of men could be consistently organized might ultimately become numerous; these following divisions of occupation may at once be suggested.

1. Road-Making.—Good roads to be made wherever needed, and kept in constant repair; and the annual loss on unfrequented roads in spoiled horses, strained wheels, and time, done away with.

2. Bringing in of Waste Land.—All waste lands not necessary for public health, to be made accessible and gradually reclaimed.

3. Harbour-Making.—The deficiencies of safe or convenient harbourage in our smaller ports to be remedied; other harbours built at dangerous points of coast, and a disciplined body of men always kept in connection with the pilot and lifeboat services. There is room for every order of intelligence in this work, and for a large body of superior officers.

4. Porterage.—All heavy goods not requiring speed in transit, to be carried (under preventive duty on transit by railroad) by canal boats, employing men for draught, and the merchant shipping service extended by sea; so that no ships may be wrecked for want of hands, while there are idle ones in mischief on shore.

5. Repair of Buildings.—A body of men in various trades to be kept at the disposal of the authorities in every large town for consistent repair of buildings, especially the houses of the poorer orders, who, if no such provision were made, could not employ workmen on their own houses, but would simply live with rent walls and roofs.

6. Dress-Making.—Substantial dress, of standard material and kind, strong shoes, and stout bedding, to be manufactured for the poor, so as to render it unnecessary for them,

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[1] Here the first edition of the pamphlet ends; the remaining sentences being contained in the second edition only.

unless by extremity of improvidence, to wear cast clothes, or be without sufficiency of clothing.

7. Works of Art.—Schools to be established on thoroughly sound principles of manufacture and use of materials, and with simple and, for given periods, unalterable modes of work; first in pottery, and embracing gradually metal work, sculpture, and decorative painting; the two points insisted upon, in distinction from ordinary commercial establishments, being perfectness of material to the utmost attainable degree; and the production of everything by hand-work, for the special purpose of developing personal power and skill in the workman.

The two last departments, and some subordinate branches of the others, would include the service of women and children.

[From "The Y. M. A. Magazine," conducted by the Young Men's Association, Clapham Congregational Church. September, 1879. Vol. iii., No. 12, p. 242.]

BLINDNESS AND SIGHT.[1]

BRANTWOOD, CONISTON, LANCASHIRE,
18*th July*, 1879.

MY DEAR SIR: The reason I never answered was—I now find—the difficulty of explaining my fixed principle never to join in any invalid charities. All the foolish world is ready to help in *them;* and will spend large incomes in trying to make idiots think, and the blind read, but will leave the noblest intellects to go to the Devil, and the brightest eyes to remain spiritually blind forever! All *my* work is to help those who *have* eyes and see not.

Ever faithfully yours, J. RUSKIN.

THOS. POCOCK, ESQ.

I must add that, to *my* mind, the prefix of "Protestant" to your society's name indicates far *stonier* blindness than any it will relieve.

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[1] This letter was sent by Mr. Ruskin to the Secretary of the Protestant Blind Pension Society in answer to an application for subscriptions which Mr. Ruskin had mislaid, and thus left unanswered.

[From "The Y. M. A. Magazine," October, 1879, Vol. iv., No. 1, p. 12.]

THE EAGLE'S NEST.[1]

To the Editor of "The Y. M. A. Magazine."

My dear Sir: There is a mass of letters on my table this morning, and I am not quite sure if the "Y. M. A. Magazine," among them, is the magazine which yours of the 15th speaks of as "enclosed;" but you are entirely welcome to print my letter about Blind Asylums anywhere, and if in the "Y. M. A." I should be glad to convey to its editor, at the same time, my thanks for the article on "Growing Old," which has not a little comforted me this morning—and my modest recommendation that, by way of antidote to the No. III. paper on the Sun, he should reproduce the 104th, 115th, and 116th paragraphs of my "Eagle's Nest," closing them with this following sentence from the 12th Book of the Laws of Plato, dictating the due time for the sittings of a Parliament seeking righteous policy (and composed, they may note farther, for such search, of Young Men and Old):

ἑκάστης μὲν ἡμέρας συλλεγόμενος ἐξ ἀνάγκης ἀπ' ὄρθρου μέχρι περ ἂν ἥλιος ἀνίσχῃ.

Ever faithfully yours, J. Ruskin.

Brantwood, Coniston, Lancashire, *August 17th*, 1879.

[From "The Y. M. A. Magazine," November, 1879, Vol. iv., No. 2, p. 36.]

POLITICS IN YOUTH.

To the Editor of "The Y. M. A. Magazine."

My dear Sir: I am heartily obliged by your publication of those pieces of "Eagle's Nest," and generally interested in your Magazine, papers on politics excepted. Young men have

[1] The article on "Growing Old," (Y. M. A., August, 1879) was "a study from the poets" on happiness in old age; that upon the sun, contained in the same number of the magazine, dealt with the spots in the sun, and the various scientific opinions about them; the paragraphs reprinted from the Eagle's Nest are upon the sun as the Light, and Health, and Guide of Life.

no business with politics at all; and when the time is come for them to have opinions, they will find all political parties resolve themselves at last into two—that which holds with Solomon, that a rod is for the fool's back,[1] and that which holds with the fool himself, that a crown is for his head, a vote for his mouth, and all the universe for his belly.

Ever faithfully yours,

(Signed) J. RUSKIN.

The song on "Life's Mid-day" is very beautiful, except the third stanza. The river of God will one day sweep down the great city, not feed it.[2]

SHEFFIELD, *October 19th*, 1879.

[From the "New Year's Address and Messages to Blackfriars Bible Class." Aberdeen, 1873.]

"*ACT, ACT IN THE LIVING PRESENT.*"[3]

CORPUS CHRISTI COLLEGE, OXFORD,
Christmas Eve, '72.

MY DEAR SIR: I am always much interested in any effort such as you are making on the part of the laity.

If you care to give your class a word directly from me, say to them that they will find it well, throughout life, never to trouble themselves about what they ought *not* to do, but about what they *ought* to do. The condemnation given from the

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[1] Proverbs xxvi. 3, and x. 13.

[2] The following are the lines specially alluded to:

> Shall the strong full-flowing river, bearing on its mighty breast
> Half the wealth of some proud nation, precious spoils of East and West,
> Shall it mourn its mountain cradle and its infant heathery bed,
> All its youthful songs and dances, as adown the hills it sped,
> When by it in yon great city half a million mouths are fed?
>
> [Y. M. A. Magazine, October, 1879.]

[3] This and the two following letters were originally printed in different annual numbers of the above-named publication, to whose editor (Mr. John Leith, 75 Crown Street, Aberdeen) they were addressed. Amongst the "messages" contained in them are some from Mr. Gladstone and others.

judgment throne—most solemnly described—is all for the *undones* and not for the *dones*.[1] People are perpetually afraid of doing wrong; but unless they are doing its reverse energetically, they do it all day long, and the degree does not matter. The Commandments are necessarily negative, because a new set of positive ones would be needed for every person: while the negatives are constant.

But Christ sums them all into two rigorous positions, and the first position for young people is active and attentive kindness to animals, supposing themselves set by God to feed His real sheep and ravens before the time comes for doing either figuratively. There is scarcely any conception left of the character which animals and birds might have if kindly treated in a wild state.

Make your young hearers resolve to be honest in their work in this life.—Heaven will take care of them for the other.

Truly yours,

JOHN RUSKIN.

[From "New Year's Address and Messages to Blackfriars Bible Class." Aberdeen, 1874.]

"*LABORARE EST ORARE.*"

CORPUS CHRISTI COLLEGE, OXFORD,
December, 1873.

MY DEAR SIR: I should much like to send your class some message, but have no time for anything I like.

My own constant *cry* to all Bible readers is a very simple one—Don't think that Nature (human or other) is corrupt; don't think that you yourself are elect out of it; and don't think to serve God by praying instead of obeying.

Ever, my dear Sir, very faithfully yours,

JOHN RUSKIN.

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[1] See the tenth of Mr. Ruskin's letters on the Lord's Prayer, Contemporary Review, December, 1879, p. 550.

[From "New Year's Address," etc. (as above), 1878.]

A PAGAN MESSAGE.

HERNE HILL, LONDON, S.E.
19 *Dec.* 1877.

MY DEAR SIR: I am sure you know as well as I that the best message for any of your young men who really are trying to read their Bibles is whatever they first chance to read on whatever morning.

But here's a Pagan message for them, which will be a grandly harmonized bass for whatever words they get on the New Year.

> Inter spem curamque, timores et inter iras,
> *Omnem* crede diem tibi diluxisse supremum.[1]

("Amid hope and sorrow, amid fear and wrath, believe *every* day that has dawned on thee to be thy last.")

Ever faithfully yours,
JOHN RUSKIN.

[From "The Science of Life."]

THE FOUNDATIONS OF CHIVALRY.[2]

VENICE, *February 8th*, 1877.

MY DEAR ——: This is a nobly done piece of work of yours —a fireman's duty in fire of hell; and I would fain help you in all I could, but my way of going at the thing would be from the top down—putting the fire out with the sun, not with vain sprinklings. People would say I wasn't practical,

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[1] Horace, Epistles, i. 4. 12.

[2] The following letters were addressed by Mr. Ruskin to the author of a pamphlet on continence, entitled The Science of Life. There were two editions of the pamphlet, and of these only the second contained the first and last of these letters, whilst only the first contained the last letter but one. Some passages also in the other letters are omitted in the first edition, and a few slight alterations are made in the second in the letter of February 10.

as usual of course; but it seems to me the last thing one should do in the business is to play Lord Angelo, and set bar and door to deluge. Not but I should sift the windows of our Oxford printsellers, if I had my full way in my Art Professorship; but I can't say the tenth part of what I would. I'm in the very gist and main effort of quite other work, and can't get my mind turned to this rightly, for this, in the heart of it, involves—well, to say the whole range of moral philosophy, is nothing; this, in the heart of it, one can't touch unless one knew the moral philosophy of angels also, and what that means, "but are as the angels in heaven." For indeed there is no true conqueror of Lust but Love; and in this beautifully scientific day of the British nation, in which you have no God to love any more, but only an omnipotent coagulation of copulation: in which you have no Law nor King to love any more, but only a competition and a constitution, and the oil of anointing for king and priest used to grease your iron wheels down hill: when you have no country to love any more, but "patriotism is nationally what selfishness is individually," [1] such the eternally-damned modern view of the matter—the moral syphilis of the entire national blood: and, finally, when you have no true bride and groom to love each other any more, but a girl looking out for a carriage and a man for a position, what have you left on earth to take pleasure in, except theft and adultery?

The two great vices play into each other's hands. Ill-got money is always finally spent on the harlot. Look at Hogarth's two 'prentices; the sum of social wisdom is in that bit of rude art-work, if one reads it solemnly.

VENICE, *February 10th.*

HENCE, if from any place in earth, I ought to be able to send you some words of warning to English youths, for the ruin of this mighty city was all in one word—fornication.

[1] For further notice by Mr. Ruskin of this maxim, which occurs in Mr. Herbert Spencer's Study of Sociology, p. 205, see the article on Home and its Economies in the Contemporary Review of May, 1873, and Bibliotheca Pastorum, p. xxxiv.

Fools who think they can write history will tell you it was "the discovery of the Cape of Good Hope," and the like! Alas it was indeed the covering of every hope she had, in God and his Law.

For indeed, my dear friend, I doubt if you can fight this evil by mere heroism and common-sense. Not many men are heroes; not many are rich in common-sense. They will train for a boat-race; will they for the race of life? For the applause of the pretty girls in blue on the banks; yes. But to win the soul and body of a noble woman for their own forever, will they? Not as things are going, I think, though how or where they are to go or end is to me at present inconceivable.

. . . . . .

You think, perhaps, I could help you therefore with a lecture on good taste and Titian? No, not at all; I might with one on politics, but that everybody would say was none of my business. Yet to understand the real meaning of the word "Sire," with respect to the rider as well as the horse, is indeed the basis of all knowledge, in policy, chivalry, and social order.

All that you have advised and exposed is wisely said and bravely told; but no advice, no exposure, will be of use, until the right relation exists again between the father and the mother and their son. To deserve his confidence, to keep it as the chief treasure committed in trust to them by God: to be the father his strength, the mother his sanctification, and both his chosen refuge, through all weakness, evil, danger, and amazement of his young life. My friend, while you still teach in Oxford the "philosophy," forsooth, of that poor cretinous wretch, Stuart Mill, and are endeavouring to open other "careers" to English women than that of the Wife and the Mother, you won't make your men chaste by recommending them to leave off tea.[1]

[1] I have to state that this expression regarding Stuart Mill was not intended for separate publication; and to explain that in a subsequent but unpublished letter Mr. Ruskin explained it to refer to Mill's utter deficiency in the powers of the imagination.—The last words of this letter will be made clearer by noting that the pamphlet dealt with physical, as well as mental, diet.

VENICE, 11*th February.*

MY DEAR ——: I would say much more, if I thought any one would believe me, of the especial calamity of this time, with respect to the discipline of youth—in having no food any more to offer to their imagination. Military distinction is no more possible by prowess, and the young soldier thinks of the hurdle-race as one of the lists and the field—but the noble temper will not train for that trial with equal joy. Clerical eminence—the bishopric or popular pastorship—may be tempting to men of genial pride or sensitive conceit: but the fierce blood that would have burned into a patriarch, or lashed itself into a saint—what "career" has your modern philosophy to offer to *it?*

The entire cessation of all employment for the faculty, which, in the best men of former ages, was continually exercised and satisfied in the realization of the presence of Christ with the hosts of Heaven, leaves the part of the brain which it employed absolutely vacant, and ready to suck in, with the avidity of vacuum, whatever pleasantness may be presented to the natural sight in the gas-lighted beauty of pantomimic and casino Paradise.

All these disadvantages, you will say, are inevitable, and need not be dwelt upon. In my own school of St. George I mean to avoid them by simply making the study of Christianity a true piece of intellectual work; my boys shall at least know what their fathers believed, before they make up their own wise minds to disbelieve it. They shall be infidels, if they choose, at thirty; but only students, and very modest ones, at fifteen. But I shall at least ask of modern science so much help as shall enable me to begin to teach them at that age the physical laws relating to their own bodies, openly, thoroughly, and with awe; and of modern civilization, I shall ask so much help as may enable me to teach them what is indeed right, and what wrong, for the citizen of a state of noble humanity to do, and permit to be done, by others, unaccused.

And if you can found two such chairs in Oxford—one, of the Science of Physical Health; the other, of the Law of

Human Honor—you need not trim your Horace, nor forbid us our chatty afternoon tea.

I could say ever so much more, of course, if there were only time, or if it would be of any use—about the misappliance of the imagination. But really, the essential thing is the founding of real schools of instruction for both boys and girls —first, in domestic medicine and all that it means; and secondly, in the plain moral law of all humanity: "Thou shalt not commit adultery," with all that *it* means.

Ever most truly yours,

J. Ruskin.

Venice, 12*th February*, '77.

My dear ——: Two words more, and an end. I have just re-read the paper throughout. There are two omissions which seem to me to need serious notice.

The first, that the entire code of counsel which you have drawn up, as that which a father should give his son, must be founded on the assumption that, at the proper time of life, the youth will be able, no less than eager, to marry. You ought certainly to point out, incidentally, what in my St. George's work I am teaching primarily, that unless this first economical condition of human society be secured, all props and plasters of its morality will be in vain.

And in the second place, you have spoken too exclusively of Lust, as if *it* were the normal condition of sexual feeling, and the only one properly to be called sexual. But the great relation of the sexes is Love, not Lust; that is the relation in which "male and female created He them;" putting into them, indeed, to be distinctly restrained to the office of fruitfulness, the brutal passion of Lust: but giving them the spiritual power of Love, that each spirit might be greater and purer by its bond to another associate spirit, in this world, and that which is to come; help-mates, and sharers of each other's joy forever.

Ever most truly yours,

J. Ruskin.

Malham, *July* 3*d*, 1878.

Dear ——: I wish I were able to add a few more words, with energy and clearness, to my former letters, respecting a

subject of which my best strength—though in great part lately given to it, has not yet enforced the moment—the function, namely, of the arts of music and dancing as leaders and governors of the bodily, and instinctive mental, passions. No nation will ever bring up its youth to be at once refined and pure, till its masters have learned the *use* of all the arts, and primarily of these; till they again recognize the gulf that separates the Doric and Lydian modes, and perceive the great ordinance of Nature, that the pleasures which, rightly ordered, exalt, discipline, and guide the hearts of men, if abandoned to a reckless and popular Dis-order, as surely degrade, scatter, and deceive alike the passions and intellect.

I observe in the journals of yesterday, announcement that the masters of many of our chief schools are at last desirous of making the elements of Greek art one of the branches of their code of instruction: but that they imagine such elements may be learned from plaster casts of elegant limbs and delicate noses.

They will find that Greek art can only be learned from Greek law, and from the religion which gives law of life to all the nations of the earth. Let our youth once more learn the meaning of the words "music," "chorus," and "hymn" practically; and with the understanding that all such practice, from lowest to highest, is, if rightly done, always in the presence and to the praise of God; and we shall have gone far to shield them in a noble peace and glorious safety from the darkest questions and the foulest sins that have perplexed and consumed the youth of past generations for the last four hundred years.

Have you ever heard the charity children sing in St. Paul's? Suppose we sometimes allowed God the honor of seeing our *noble* children collected in like manner to sing to Him, what think you might be the effect of such a festival—even if only held once a year—on the national manners and hearts?

Ever faithfully and affectionately yours,

J. Ruskin.

V.—WOMEN: THEIR WORK AND THEIR DRESS.

[From "L'Espérance, Journel Mensuel, organe de l'Association des Femmes." Genève, le 8 Mai, 1873.]

WOMAN'S WORK.

Lettre à la Présidente.[1]

Ma chére Madame: Je vous remercie de votre lettre si intéressante, car je sympathise de tout mon cœur avec la plupart des sentiments et des souhaits que vous y exprimez. Mais arriver à rendre des femmes plus nobles et plus sages est une chose; les élever de façon à ce qu'elles entretiennent leurs maris est une autre!

Je ne puis trouver des termes assez forts pour exprimer la haine et le mépris que je ressens pour l'idée moderne qu'une femme doit cesser d'être mère, fille, ou femme pour qu'elle puisse devenir commis ou ingénieur.

Vous êtes toutes entièrement sottes dans cette matière. Le devoir d'un homme est d'entretenir sa femme et ses enfants, celui d'une femme est de le rendre heureux chez lui, et d'élever ses enfants sagement. Aucune femme n'est capable de faire plus que cela. Aucune femme ne doit faire moins, et un homme qui ne peut pas nourrir sa femme, et désire qu'elle travaille pour lui, mérite d'être pendu au-dessus de sa porte.

Je suis, Madame, fidèlement à vous,

J. Ruskin.

[Date and place of publication unknown.]

FEMALE FRANCHISE.

Venice, 29*th May*, 1870.

Sir: I am obliged by your note. I have no time for private correspondence at present, but you are quite right in your

[1] I have been unable to get access to the paper from which this letter is taken, and must therefore leave without explanation the fortunately unimportant references in its first paragraph.

supposition as to my views respecting female franchise. So far from wishing to give votes to women, I would fain take them away from most men.[1]

Very sincerely yours,

J. RUSKIN.

[From "The Monthly Packet," November, 1863, p, 556.]

PROVERBS ON RIGHT DRESS.[2]

GENEVA, *October 20th*, 1862.

MY DEAR SIR: I am much obliged by your letter: pardon me if for brevity's sake I answer with appearance of dogmatism. You will see the subject treated as fully as I am able in the course of the papers on political economy, of which the two first have already appeared in *Fraser's Magazine*.[3]

The man and woman are meant by God to be perfectly noble and beautiful in each other's eyes. The dress is right which makes them so. The best dress is that which is beautiful in the eyes of noble and wise persons.

Right dress is therefore that which is fit for the station in life, and the work to be done in it; and which is otherwise graceful—becoming—lasting—healthful—and easy; on occasion, splendid; *always* as beautiful as possible.

Right dress is therefore strong—simple—radiantly clean—carefully put on—carefully kept.

Cheap dress, bought for cheapness sake, and costly dress bought for costliness sake, are *both* abominations. Right

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[1] So also in writing an excuse for absence from a lecture upon Woman's Work and Woman's Sphere, given on behalf of the French female refugees by Miss Emily Faithfull in February, 1871, Mr. Ruskin said: "I most heartily sympathize with you in your purpose of defining woman's work and sphere. It is as refreshing as the dew's, and as defined as the moon's, but it is not the rain's nor the sun's." (Daily Telegraph, Feb. 21, 1871.)

[2] The preceding numbers of the Monthly Packet had contained various letters upon dress, and the present one was then sent to the Editor by the person to whom it was originally addressed.

[3] In June and September, 1863. See the first two chapters of Munera Pulveris.

dress is bought *for* its worth, and *at* its worth; and bought only when wanted.

Beautiful dress is chiefly beautiful in color—in harmony of parts—and in mode of putting on and wearing. Rightness of mind is in nothing more shown than in the mode of wearing simple dress.

Ornamentation involving design, such as embroidery, etc., produced *solely* by industry of *hand*, is highly desirable in the state dresses of all classes, down to the lowest peasantry.

National costume, wisely adopted and consistently worn, is not only desirable but necessary in right national organization. Obeying fashion is a great folly, and a greater crime; but gradual changes in dress properly accompany a healthful national development.

The Scriptural authority for dress is centralized by Proverbs xxxi. 21, 22; and by 1 Samuel i. 24; the latter especially indicating the duty of the king or governor of the state; as the former the duty of the housewife. It is necessary for the complete understanding of those passages, that the reader should know that "scarlet" means intense central radiance of pure color; it is the type of purest color—between pale and dark—between sad and gay. It was therefore used with hyssop as a type of purification. There are many stronger passages, such as Psalm xlv. 13, 14; but as some people read them under the impression of their being figurative, I need not refer to them. The passages in the Prophecies and Epistles against dress apply only to its abuses. Dress worn for the sake of vanity, or coveted in jealousy, is as evil as anything else similarly so abused. A woman should earnestly desire to be beautiful, as she should desire to be intelligent; her dress should be as studied as her words; but if the one is worn or the other spoken in vanity or insolence, both are equally criminal.

I have not time, and there is no need, to refer you to the scattered notices of dress in my books: the most important is rather near the beginning of my "Political Economy of Art;"[1]

[1] See pp. 67–75 of the original, and 50–55 of the new edition (A Joy for Ever).

but I have not the book by me: if you make any use of this letter (you may make any you please), I should like you to add that passage to it, as it refers to the more immediate need of economy in dress, when the modes of its manufacture are irregular, and cause distress to the operative.

Believe me, my dear Sir, very faithfully yours,

J. RUSKIN.

[From "Macmillan's Magazine," November, 1870, p. 80.]

SAD-COLORED COSTUMES.

DENMARK HILL, S.E., 14*th Oct.*, 1870.

To the Editor of "Macmillan's Magazine."

SIR: At p. 423 of your current number, Mr. Stopford A. Brooke states that it is a proposal of mine for regenerating the country, that the poor should be "dressed all in one sad-colored costume."[1]

It is, indeed, too probable that one sad-colored costume may soon be "your only wear," instead of the present motley —for both poor and rich. But the attainment of this monotony was never a proposition of mine; and as I am well aware Mr. Brooke would not have been guilty of misrepresentation, if he had had time to read the books he was speaking of, I am sure he will concur in my request that you would print in full the passages to which he imagined himself to be referring.

I am, Sir, your obedient servant,

JOHN RUSKIN.

1. "You ladies like to lead the fashion: by all means lead it. Lead it thoroughly. Lead it far enough. Dress yourselves nicely, and dress everybody else nicely. Lead the fash-

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[1] Mr. Stopford Brooke's article was a review of Mr. Ruskin's Lectures on Art, delivered at Oxford, and then recently published. In a note to the present letter the Editor of the Magazine stated Mr. Brooke's regret "at having been led by a slip of memory into making an inaccurate statement."

ions for the poor first; make *them* look well, and you yourselves will look—in ways of which you have at present no conception—all the better."—"Crown of Wild Olive" (1866), p. 18.[1]

2. "In the simplest and clearest definition of it, economy, whether public or private, means the wise management of labor; and it means this mainly in three senses: namely, first, applying your labor rationally; secondly, preserving its produce carefully; lastly, distributing its produce seasonably.

"I say first, applying your labor rationally; that is, so as to obtain the most precious things you can, and the most lasting things by it: not growing oats in land where you can grow wheat, nor putting fine embroidery on a stuff that will not wear. Secondly, preserving its produce carefully; that is to say, laying up your wheat wisely in storehouses for the time of famine, and keeping your embroidery watchfully from the moth; and lastly, distributing its produce seasonably; that is to say, being able to carry your corn at once to the place where the people are hungry, and your embroideries to the places where they are gay; so fulfilling in all ways the wise man's description, whether of the queenly housewife or queenly nation: 'She riseth while it is yet night, and giveth meat to her household, and a portion to her maidens. She maketh herself coverings of tapestry, her clothing is silk and purple. Strength and honor are in her clothing, and she shall rejoice in time to come.'

"Now you will observe that in this description of the perfect economist, or mistress of a household, there is a studied expression of the balanced division of her care between the two great objects of utility and splendor: in her right hand, food and flax, for life and clothing; in her left hand, the purple and the needlework, for honor and for beauty. . . . And in private and household economy you may always judge of its perfectness by its fair balance between the use and the pleasure of its possessions: you will see the wise cottager's garden trimly divided between its well-set vegetables and its

[1] See the 1873 edition of the Crown of Wild Olive, p. 30, § 27.

fragrant flowers: you will see the good housewife taking pride in her pretty tablecloth and her glittering shelves, no less than in her well-dressed dish and full store-room: the care will alternate with gayety; and though you will reverence her in her seriousness, you will know her best by her smile."—"Political Economy of Art" (1857), pp. 10–13.[1]

[From "The Times," October 24, 1862.]

OAK SILKWORMS.

To the Editor of "The Times."

SIR: In your excellent article of October 17, on possible substitutes for cotton, you say "it is very doubtful whether we could introduce the silkworm with profit." The silkworm of the mulberry tree, indeed, requires a warmer climate than ours, but has attention yet been directed to the silkworm of the oak? A day or two ago a physician of European reputation, Dr. L. A. Gosse, was speaking to me of the experiments recently made in France in its acclimatization. He stated to me that the only real difficulty was temporary—namely, in the importation of the eggs, which are prematurely hatched as they are brought through warm latitudes. A few only have reached Europe, and their multiplication is slow, but once let them be obtained in quantity and the stripping of an oak coppice is both robe and revenue. The silk is stronger than that of the mulberry tree, and the stuff woven of it more healthy than cotton stuffs for the wearer; it also wears twice as long. This is Dr. Gosse's report—likely to be a trustworthy one—at all events, it seems to me worth sending you.

I remain your obedient servant,

J. RUSKIN.

GENEVA, *Oct. 20th.*

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[1] See A Joy for Ever (1880), pp. 7–9.

VI.—LITERARY CRITICISM.

[From "The World," June 9, 1875.]

THE PUBLICATION OF BOOKS.[1]

CORPUS CHRISTI COLLEGE, OXFORD,
June 6, 1875.

To the Editor of "The World."

SIR: I am very grateful for the attention and candor with which you have noticed my effort to introduce a new method of publishing.

Will you allow me to explain one or two points in which I

[1] This letter refers to an article on Mr. Ruskin's peculiar method of publication which appeared in the World of May 26, 1875. It was entitled "Ruskin to the Rescue," and with the criticism to which Mr. Ruskin alludes, strongly approved the idea of some reform being attempted in the matter of the publication of books. Mr. Ruskin began the still-continued method of publishing his works in 1871; and the following advertisement, inserted in the earlier copies of the first book thus published—Sesame and Lilies—will give the reader further information on the matter.

"It has long been in my mind to make some small beginning of resistance to the existing system of irregular discount in the bookselling trade—not in hostility to booksellers, but, as I think they will find eventually, with a just regard to their interest, as well as to that of authors. Every volume of this series of my collected works will be sold to the trade without any discount or allowance on quantity, at such a fixed price as will allow both author and publisher a moderate profit on each volume. It will be sold to the trade only; who can then fix such further profit on it as they deem fitting, for retail.

"Every volume will be clearly printed, and thoroughly well bound: on such conditions the price to the public, allowing full profit to the retailer, may sometimes reach, but ought never to exceed, half a guinea, nor do I wish it to be less. I will fully state my reasons for this procedure in the June number of Fors Clavigera.

"The price of this first volume to the trade is seven shillings."

In subsequent similar notices, some parts of this plan, especially as regarded purchasers and price, were altered; the trade not accepting the offer of sale to them only, and the "trouble and difficulty of revising text and preparing plates" proving much greater than Mr. Ruskin had expected.

am generally misunderstood? I meant to have asked your leave to do so at some length, but have been entirely busy, and can only say, respecting two of your questions, what in my own mind are the answers.

I. "How many authors are strong enough to do without advertisements?"

None: while advertisement is the practice. But let it become the fashion to announce books once for all in a monthly circular (publisher's, for instance), and the public will simply refer to that for all they want to know. Such advertisement I use now, and always would.

II. "Why has he determined to be his own publisher?"

I wish entirely to resist the practice of writing for money early in life. I think an author's business requires as much training as a musician's, and that, as soon as he can write really well, there would always, for a man of worth and sense, be found capital enough to enable him to be able to print, say, a hundred pages of his careful work; which, if the public were pleased with, they would soon enable him to print more. I do not think young men should rush into print, nor old ones modify their books to please publishers.

III. And it seems to me, considering that the existing excellent books in the world would—if they were heaped together in great towns—overtop their cathedrals, that at *any* age a man should think long before he invites his neighbors to listen to *his* sayings on any subject whatever.

What I do, therefore, is done only in the conviction, foolish, egotistic, whatever you like to call it, but firm, that I am writing what is needful and useful for my fellow-creatures; that if it is so, they will in due time discover it, and that before due time I do not want it discovered. And it seems to me that no sound scholar or true well-wisher to the people about him would write in any other temper. I mean to be paid for my work, if it is worth payment. Not otherwise. And it seems to me my mode of publication is the proper method of ascertaining that fact. I had much more to say, but have no more time, and am, sir, very respectfully yours,

JOHN RUSKIN.

[From "The Pall Mall Gazette," January 11, 1875.]

A MISTAKEN REVIEW.[1]

To the Editor of "The Pall Mall Gazette."

SIR: The excellent letters and notes which have recently appeared in your columns on the subject of reviewing lead me to think that you will give me space for the statement of one or two things which I believe it is right the public should know respecting the review which appeared in the *Examiner* of the 2d of this month (but which I did not see till yesterday), by Mr. W. B. Scott, of Mr. St. J. Tyrrwhitt's "Letters on Landscape Art."

1. Mr. Scott is one of the rather numerous class of artists of whose works I have never taken any public notice, and who attribute my silence to my inherent stupidity of disposition.

2. Mr. Scott is also one of the more limited and peculiarly unfortunate class of artists who suppose themselves to have great native genius, dislike being told to learn perspective, and prefer the first volume of "Modern Painters," which praises many third-rate painters, and teaches none, to the following volumes, which praise none but good painters, and sometimes admit the weakness of advising bad ones.

3. My first acquaintance with Mr. Scott was at the house of a gentleman whose interior walls he was decorating with historic frescos, and whose patronage I (rightly or wrongly) imagined at that time to be of importance to him. I was then more good-natured and less conscientious than I am now, and my host and hostess attached weight to my opinions. I said

[1] Of this review nothing need be said beyond what is stated in this letter. The full title of the book which it so harshly treated is Our Sketching Club. Letters and Studies on Landscape Art. By the Rev. R. St. John Tyrrwhitt, M.A. With an authorized reproduction of the lessons and woodcuts in Professor Ruskin's Elements of Drawing. Macmillan, 1874. The "letters and notes" refer especially to one signed "K" in the Gazette of January 1, and another signed "A Young Author" in that of January 4. The principal complaint of both these letters was that reviewers seldom master, and sometimes do not even read the books they criticise.

all the good I truly could of the frescos, and no harm; painted a corn-cockle on the walls myself, in reverent subordination to them; got out of the house as soon afterwards as I could, and never since sought Mr. Scott's acquaintance further (though, to my regret, he was once photographed in the same plate with Mr. Rossetti and me). Mr. Scott is an honest man, and naturally thinks me a hypocrite and turncoat as well as a fool.

4. The honestest man in writing a review is apt sometimes to give obscure statements of facts which ought to have been clearly stated to make the review entirely fair. Permit me to state in very few words those which I think the review in question does not clearly represent. My "Elements of Drawing" were out of print, and sometimes asked for; I wished to rewrite them, but had not time, and knew that my friend and pupil, Mr. Tyrrwhitt, was better acquainted than I myself with some processes of water-color sketching, and was perfectly acquainted with and heartily acceptant of the principles which I have taught to be essential in all art. I knew he could write, and I therefore asked him to write, a book of his own to take the place of the "Elements," and authorized him to make arrangements with my former publisher for my wood-blocks, mostly drawn on the wood by myself.

The book is his own, not mine, else it would have been published as mine, not his. I have not read it all, and do not answer for it all. But when I wrote the "Elements" I believed conscientiously that book of mine to be the best then attainable by the public on the subject of elementary drawing. I think Mr. Tyrrwhitt's a better book, know it to be a more interesting one, and believe it to be, in like manner, the best now attainable by the British public on elementary practice of art. I am, Sir, your faithful servant,

JOHN RUSKIN.

BRANTWOOD, *Jan.* 10.

[From "The Pall Mall Gazette," January 19, 1875.]

THE POSITION OF CRITICS.

To the Editor of "The Pall Mall Gazette."

SIR: I see you are writing of criticism;[1] some of your readers may, perhaps, be interested in hearing the notions of a man who has dabbled in it a good many years. I believe, in a word, that criticism is as impertinent in the world as it is in a drawing-room. In a kindly and well-bred company, if anybody tries to please them, they try to be pleased; if anybody tries to astonish them, they have the courtesy to be astonished; if people become tiresome, they ask somebody else to play, or sing, or what not, but they don't criticise. For the rest, a bad critic is probably the most mischievous person in the world (Swift's Goddess of Criticism in the "Tale of a Tub" seems what need be represented, on that subject[2]), and a good one the most helpless and unhappy: the more he knows, the less he is trusted, and it is too likely he may become morose in his unacknowledged power. A good executant, in any art, gives pleasure to multitudes, and breathes an atmosphere of praise, but a strong critic is every man's adversary—men feel that he knows their foibles, and cannot conceive that he knows more. His praise, to be acceptable, must be always unqualified; his equity is an offence instead of a virtue; and the art of correction, which he has learned so laboriously, only fills his hearers with disgust.

I am, Sir, your faithful servant,

JOHN RUSKIN.

BRANTWOOD, *Jan.* 18.

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[1] Since the correspondence already mentioned, the Gazette of January 14 and 18 had contained two long letters on the subject from "A Reviewer."

[2] The Goddess of Criticism, with Ignorance and Pride for her parents, Opinion for her sister, and for her children Noise and Impudence, Dulness and Vanity, Positiveness, Pedantry, and Ill-manners, is described in the Battle of the Books—the paper which follows, and is a companion to the Tale of a Tub.

[From "The Critic," October 27, 1860.]

COVENTRY PATMORE'S "FAITHFUL FOR EVER."

To the Editor of "The Critic."

SIR: I do not doubt, from what I have observed of the general tone of the criticisms in your columns, that, in candor and courtesy, you will allow me to enter protest, bearing such worth as private opinion may, against the estimate expressed in your last number of the merits of Mr. C. Patmore's new poem.[1] It seems to me that you have read it hastily; and that you have taken such view of it as on a first reading almost every reader of good but impatient judgment would be but too apt to concur with you in adopting—one, nevertheless, which, if you examine the poem with care, you will, I think, both for your readers' sake and Mr. Patmore's, regret having expressed so decidedly.

The poem is, to the best of my perception and belief, a singularly perfect piece of art; containing, as all good art does, many very curious shortcomings (to appearance), and places of rest, or of dead color, or of intended harshness, which, if they are seen or quoted without the parts of the piece to which they relate, are of course absurd enough, precisely as the discords in a fine piece of music would be if you played them without their resolutions. You have quoted separately Mr. Patmore's discords; you might by the same system of examination have made Mozart or Mendelssohn appear to be no musicians, as you have probably convinced your quick readers that Mr. Patmore is no poet.

I will not beg of you so much space as would be necessay to analyze the poem, but I hope you will let me—once for all—protest against the method of criticism which assumes that entire familiarity and simplicity in certain portions of a great work destroy its dignity. Simple things ought to be simply said, and truly poetical diction is nothing more nor less than right diction; the incident being itself poetical or not, accord-

[1] The tone of the criticism is sufficiently explained in this letter.

ing to its relations and the feelings which it is intended to manifest—not according to its own nature merely. To take a single instance out of Homer bearing on that same simple household work which you are so shocked at Mr. Patmore's taking notice of, Homer describes the business of a family washing, when it comes into his poem, in the most accurate terms he can find. "They took the clothes in their hands; and poured on the clean water; and trod them in trenches thoroughly, trying who could do it best; and when they had washed them and got off all the dirt, they spread them out on the sea-beach, where the sea had blanched the shingle cleanest."[1]

These are the terms in which the *great* poet explains the matter. The less poet—or, rather, man of modern wit and

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[1] See Homer, Odyssey, vi. 90.

Εἵματα χερσὶν ἕλοντο καὶ ἐσφόρεον μέλαν ὕδωρ,
Στεῖβον δ' ἐν βόθροισι θοῶς ἔριδα προφέρουσαι.
Αὐτὰρ ἐπεὶ πλῦνάν τε καθηράν τε ῥύπα πάντα,
Ἐξείης πέτασαν παρὰ δῖν' ἀλὸς, ἦχι μάλιστα
Λαΐγγας ποτὶ χέρσον ἀποπλύνεσκε θάλασσα.

The verse translation of this passage given in the letter is from Pope's Odyssey.

The lines in Faithful for Ever, particularly alluded to as having been condemned by the "Critic," were those here italicized in the following passage:

"For your sake I am glad to hear
You sail so soon. *I send you, Dear,*
A trifling present; and will supply
Your Salisbury costs. You have to buy
Almost an outfit for this cruise!
But many are good enough to use

Again, among the things you send
To give away. My maid shall mend
And let you have them back. Adieu!
Tell me of all you see and do.
I know, thank God, whate'er it be,
'Twill need no veil 'twixt you and me."

(Faithful for Ever, p. 17, II. "Mrs. Graham to Frederick," her sailor son.)

breeding, *without* superior poetical power—thus puts the affair into dignified language:

> Then emulous the royal robes they lave,
> And plunge the vestures in the cleansing wave.
> (The vestures cleansed o'erspread the shelly sand,
> Their snowy lustre whitens all the strand.)

Now, to my mind, Homer's language is by far the most poetical of the two—is, in fact, the only poetical language possible in the matter. Whether it was desirable to give any account of this, or anything else, depends wholly on the relation of the passage to the rest of the poem, and you could only show Mr. Patmore's glance into the servant's room to be ridiculous by proving the mother's mind, which it illustrates, to be ridiculous. Similarly, if you were to take one of Mr. George Richmond's perfectest modern portraits, and give a little separate engraving of a bit of the neck-tie or coat-lappet, you might easily demonstrate a very prosaic character either in the rib-and-end or the button-hole. But the only real question respecting them is their relation to the face, and the degree in which they help to express the character of the wearer. What the real relations of the parts are in the poem in question only a thoughtful and sensitive reader will discover. The poem is not meant for a song, or calculated for an hour's amusement; it is, as I said, to the best of my belief, a finished and tender work of very noble art. Whatever on this head may be the final judgment of the public, I am bound, for my own part, to express my obligation to Mr. Patmore, as one of my severest models and tutors in use of English, and my respect for him as one of the truest and tenderest thinkers who have ever illustrated the most important, because commonest, states of noble human life.[1]

I remain, Sir, yours, etc.,

DENMARK HILL. J. RUSKIN.

[1] See Sesame and Lilies (Ruskin's Works, vol. i.), p. 89, note. "Coventry Patmore. You cannot read him too often or too carefully; as far as I know he is the only living poet who always strengthens and purifies; the others sometimes darken, and nearly always depress and discourage, the imagination they deeply seize."

[From "The Asiatic," May 23, 1871.]

"*THE QUEEN OF THE AIR.*"

To the Editor of "The Asiatic."

SIR: I am obliged and flattered by the tone of your article on my "Queen of the Air" in your last number, but not at all by the substance of it; and it so much misinterprets my attempt in that book that I will ask your leave to correct it in main points.[1] The "Queen of the Air" was written to show, not what could be fancied, but what was felt and meant, in the myth of Athena. Every British sailor knows that Neptune is the god of the sea. He does *not* know that Athena is the goddess of the air; I doubt if many of our school-boys know it—I doubt even if many of our school-masters know it; and I believe the evidence of it given in the "Queen of the Air" to be the first clear and connected approximate proof of it which has yet been rendered by scientific mythology, properly so called.

You say, "I have not attempted to explain all mythology." I wonder what you would have said of me if I *had?* I only know a little piece of it here and there, just as I know a crag of alp or a bend of river; and even what I know could not be put into a small octavo volume. Nevertheless, I should have had another such out by this time on the Apolline Myths, and, perhaps, one on the Earth-Gods, but for my Oxford work; and shall at all events have a little more to say on the matter than I have yet said—and much need there is—when all that has yet been done by "scientific" mythology ends in the assertion made by your reviewer, that "mythology is useful mainly as a storehouse for poets, and for literary men in want of some simile or metaphor to produce a striking effect."

I am, Sir, your faithful servant,

May 18, 1871. JOHN RUSKIN.

[1] The article was entitled Aryan Mythology: Second Notice, the first notice having been a review of Mr. Gladstone's Juventus Mundi, and of some other mythological works. (See the Asiatic, April 25 and May 16, 1871.) The nature of the praise and criticism of the article may be gathered from this letter.

[From "The Morning Chronicle," January 20, 1855. (Reprinted in "The Evening Journal," January 22.)]

THE ANIMALS OF SCRIPTURE: A REVIEW.[1]

Among the various illustrated works which usually grace the beginning of the year, has appeared one which, though of graver and less attractive character than its companions, is likely to occupy a more permanent place on the library shelves. We allude to "Illustrations of Scripture, by an Animal Painter," a work which, whatever its faults or weaknesses, shows at least a singular power of giving reality and interest to scenes which are apt to be but feebly, if at all, brought before the mental vision, in consequence of our familiarity with the words which describe them. The idea of the work is itself sufficiently original. The animals are throughout principal, and the pathos or moral of the passage to be illustrated is developed from its apparently subordinate part in it. Thus the luxury and idolatry of the reign of Solomon are hinted behind a group of "apes and peacocks;" the Deluge is subordinate to the dove; and the healing of the lunatic at Gennesareth to the destruction of the herd of swine.

In general, to approach an object from a new point of view is to place it in a clearer light, and perhaps the very strangeness of the treatment in some cases renders the subject more impressive than it could have been made by any more regular method of conception. But, at all events, supposing the studies of the artist to have been chiefly directed to animals, and her power to lie principally in seizing their character, she is to be thanked for filling her sketches of the inferior creatures with so much depth of meaning, and rendering the delineation even of an ape, or a swallow, suggestive of the most solemn trains of thought.

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[1] The full title of the book here reviewed by Mr. Ruskin, and long since out of print, was Twenty Photographs; being illustrations of Scripture. By an Animal Painter; with Notes by a Naturalist. Imperial 4to. Edinburgh: Constable, 1854. The work was, however, reprinted, with engravings of the photographs, in Good Words for 1861.

As so suggestive, without pretence or formalism, these drawings deserve a place of peculiar honor in the libraries of the young, while there are also some qualities in them which fit them for companionship with more elaborate works of art. The subject of "Lazarus" is treated with a courage and tenderness which say much for the painter's imagination, and more for her heart; and the waste of waters above which the raven hovers is expressed, though rudely, yet in a way which tells of many an hour spent in watching the play of the evening light upon the movement of the wearied sea. It is true that most of the compositions are weakened by a very visible contempt, if not ignorance, of the laws which regulate the harmonies of shade, as well as by a painful deficiency in the drawing. Still there is a life and sincerity in them which are among the rarest qualities in art; and one characteristic, very remarkable in the works of a person described in the text (we doubt not, much against her will) as an "accomplished lady" —we mean the peculiar tendency to conceptions of fearfulness, or horror, rather than of beauty. The camel, for instance, might, we should have thought, as easily, and to many persons much more pleasingly, have illustrated the meeting of Rebekah with the servant of Abraham, as the desolation of Rabbah; and the dog might as gracefully have been brought forward to remind us of the words of the Syro-Phœnician woman, as to increase the horror of the death of Jezebel. There are curious evidences of a similar disposition in some of the other plates; and while it appears to us indicative of the strength of a mind of no common order, we would caution the fair artist against permitting it to appear too frequently. It renders the series of drawings in some degree repulsive to many persons, and even by those who can sympathize with it might sometimes be suspected of having its root in a sublime kind of affectation.

We have spoken of these studies as drawings. They are, in fact, as good, being photographic fac-similes of the original sketches. The text is copious, and useful as an elucidation of the natural history of Scripture.

[From "The Builder," December 9, 1854.]

"LIMNER" AND ILLUMINATION.[1]

To the Editor of "The Builder."

I do not usually answer objections to my written statements, otherwise I should waste my life in idle controversy; but as what I say to the workmen at the Architectural Museum is necessarily brief, and in its words, though not in its substance, unconsidered, I will answer, if you will permit me, any questions or cavils which you may think worthy of admission into your columns on the subject of these lectures.

I do not know if the Cambridge correspondent, whose letter you inserted last week, is more zealous for the honor of Cary, or anxious to detect me in a mistake. If the former, he will find if he take the trouble to look at the note in the 264th page of the second volume of the "Stones of Venice," that Cary's reputation is not likely to suffer at my hands.[2] But

[1] In his lecture on "the distinction between illumination and painting," being the first of a series on Decorative Color delivered at the Architectural Museum, Cannon Street, Westminster, Mr. Ruskin is reported (Builder, Nov. 25, 1854) to have said, "The line which is given by Cary, 'which they of Paris call the limner's skill,' is not properly translated. The word which in the original is '*alluminare*,' does not mean the limner's art, but the art of the illuminator—the writer and illuminator of books." In criticism of this remark, "M. A.," writing to the Builder from Cambridge, defended Cary's translation by referring to Johnson's dictionary to show that "limner" was after all corrupted from "enlumineur," *i.e.*, "a decorator of books with initial pictures." His letter concluded by remarking upon another of Mr. Ruskin's statements in the same lecture, namely, that "Black letter is not really illegible, it is only that we are not accustomed to it. . . . The fact is, *no* kind of character is really illegible. If you wish to see real illegibility, go to the Houses of Parliament and look at the inscriptions there!"

The present letter was written in reply to "M. A.," from whom the latter portion of it elicited a further letter, together with one from "Vindex," in defence of Sir Charles Barry and the Houses of Parliament (see the Builder, Dec. 16, 1854).

[2] "It is generally better to read ten lines of any poet in the original language, however painfully, than ten cantos of a translation. But an exception may be made in favor of Cary's 'Dante,' If no poet ever was liable to lose more in translation, none was ever so carefully trans-

the translation in the instance quoted is inadmissible. It does not matter in the least whence the word "limner" is derived. I did not know when I found fault with it that it was a corruption of "illuminator," but I knew perfectly that it did not in the existing state of the English language *mean* "illuminator." No one talks of "limning a missal," or of a "limned missal." The word is now universally understood as signifying a painter or draughtsman in the ordinary sense, and cannot be accepted as a *translation* of the phrase of which it is a *corruption*.

Touching the last clause of the letter, I should have thought that a master of arts of Cambridge might have had wit enough to comprehend that characters may be illegible by being far off, as well as by being ill-shaped; and that it is not less difficult to read what is too small to be seen than what is too strange to be understood. The inscriptions on the Houses of Parliament are illegible, not because they are in black letters, but because, like all the rest of the work on that, I suppose the most effeminate and effectless heap of stones ever raised by man, they are utterly unfit for their position.

J. RUSKIN.

[From the "Transactions of the New Shakspere Society" for 187-89, pp. 409-12.]

NOTES ON A WORD IN SHAKESPEARE.[1]

I.

BRANTWOOD, CONISTON, LANCASHIRE.

MY DEAR FURNIVALL: Of course, in any great writer's word, the question is far less what the word came from, than where

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lated; and I hardly know whether most to admire the rigid fidelity, or the sweet and solemn harmony, of Cary's verse," etc. See the note to the Stones of Venice, at the above-named page.

[1] This and the next letter were written in answer to Mr. Furnivall, who, upon being questioned what appearance in the clouds was intended by the word "fret" in the above passage, referred the point to Mr. Ruskin, whose answers were subsequently read at the forty-fifth meeting of the Society, Oct. 11, 1878.

"And yon gray lines
That *fret* the clouds are messengers of day."
JULIUS CÆSAR, II. i. 103–4.

it has come to. *Fret* means all manner of things in that place; primarily, the rippling of clouds—as sea by wind; secondarily, the breaking it asunder for light to come through. It implies a certain degree of vexation—some dissolution—much *order*, and extreme beauty. I have myself used this word substantively, to express the rippled edge of a wing-feather. In architecture and jewellery it means simply roughening in a decorative manner.*

Ever affectionately yours,

J. Ruskin.

NOTES ON A WORD IN SHAKESPEARE.

II.

Edinburgh, 29*th Sept.*, 1878.

Dear Furnivall: Your kind letter comes to me here, and I must answer on this paper, for, if that bit of note is really of any use to you, you must please add this word or two more, in printing, as it wouldn't do to let it be such a mere fret on the vault of its subject. You say not one man in 150 knows what the line means: my dear Furnivall, not one man in 15,000, in the 19th century, knows, or even can know, what *any* line—or any *word* means, used by a great writer. For most words stand for things that are seen, or things that are thought of; and in the 19th century there is certainly not one man in 15,000 who ever looks at anything, and not one in 15,000,000 capable of a thought. Take the intelligence of this word in this line for example—the root of the whole matter is, first, that the reader should have seen what he has often heard of, but probably not seen twice in his life—"Daybreak." Next, it is needful he should think what "break" means in that word—what is broken, namely, and by what. That is to say, the cloud of night is Broken up, as a city is broken up (Jeru-

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* In modern English "chasing" has got confused with it, but it should be separated again.

salem, when Zedekiah fled), as a school breaks up, as a constitution, or a ship, is broken up; in every case with a not inconsiderable change of idea and addition to the central word. This breaking up is done by the Day, which breaks—*out*, as a man breaks, or bursts *out*, from his restraint in a passion; breaks *down* in tears; or breaks *in*, as from heaven to earth—with a breach in the cloud-wall of it; or breaks *out*, with a sense of *outward*—as the sun—out and out, farther and farther, after rain. Well; next, the thing that the day breaks up is partly a garment, *rent*, more than broken; a *mantle*, the day itself "in russet mantle clad"—the blanket of the dark, *torn* to be peeped through—whereon instantly you get into a whole host of new ideas; *fretting* as a moth *frets* a garment; unravelling at the edge, afterwards;—thence you get into *fringe*, which is an entirely double word, meaning partly a thing that guards, and partly a thing that is worn away on the ground; the French *Frange* has, I believe, a reminiscence of φράσσω in it—our "fringe" runs partly toward *frico* and friction—both are essentially connected with *frango*, and the fringe of "breakers" at the shores of all seas, and the breaking of the ripples and foam all over them—but this is wholly different in a northern mind, which has only seen the sea

> Break, break, break, on its *cold* gray stones,—

and a southern, which has seen a hot sea on hot sand break into lightning of phosphor flame—half a mile of fire in an instant—following in time, like the flash of minute-guns. Then come the great new ideas of order and time, and

> I did but tell her she mistook her *frets*,
> And bowed her hand, etc.,

and so the timely succession of either ball, flower, or dentil, in architecture: but this, again, going off to a totally different and still lovely idea, the main one in the word *aurifrigium*—which rooted once in *aurifex*, went on in Etruscan work, followed in Florence into a much closer connection with *frigidus*—their style being always in *frosted* gold (see the dew on a

cabbage-leaf or, better, on a gray lichen, in early sunshine)—going back, nobody knows how far, but to the Temple of the Dew of Athens, and gold of Mycenæ, anyhow; and in Etruria to the Deluge, I suppose. Well, then, the notion of the music of morning comes in—with strings of lyre (or *frets* of Katharine's instrument, whatever it was) and stops of various *quills;* which gets us into another group beginning with *plectrum,* going aside again into *plico* and *plight,* and Milton's

"Play in the plighted clouds"

(the quills on the fretful porcupine are all thought of, first, in their piped complexity like rushes, *before* the standing up in ill-temper), and so on into the *plight* of folded drapery, and round again to our blanket. I think that's enough to sketch out the compass of the word. Of course the real power of it in any place depends on the writer's grasp of it, and use of the facet he wants to cut with.

[From "The Theatre," March 1880, p. 169.]

"*THE MERCHANT OF VENICE.*"[1]

6th Feb., 1880.

I HAVE no doubt that whatever Mr. Irving has stated that I said, I *did* say. But in personal address to an artist, to whom

[1] The circumstances connected with the present letter, or rather extract from one, are as follows: After witnessing the performance of The Merchant of Venice at the Lyceum Theatre, Mr. Ruskin had some conversation with Mr. Irving on the subject. In the Theatre of January 1880—p. 63—appeared a paragraph which stated that at the interview named Mr. Ruskin had declared Mr. Irving's "Shylock" to be "noble, tender, and true," and it is to that statement that the present letter, which appeared in the March number of the Theatre, relates. With reference to the letter privately addressed to Mr. Irving, the Theatre of April (p. 249) had a note to the effect that Mr. Irving had, for excellent and commendable reasons, preferred it not being made public. For a full statement of Mr. Ruskin's views of The Merchant of Venice, see Munera Pulveris, p. 102.

one is introduced for the first time, one does not usually say *all* that may be in one's mind. And if expressions, limited, if not even somewhat exaggerated, by courtesy, be afterwards quoted as a total and carefully-expressed criticism, the general reader will be—or may be easily—much misled. I did and *do* much admire Mr. Irving's own acting of Shylock. But I entirely dissent (and indignantly as well as entirely) from his general reading and treatment of the play. And I think that a modern audience will *invariably* be not only wrong, but diametrically and with polar accuracy opposite to, the real view of any great author in the moulding of his work.

So far as I could in kindness venture, I expressed my feelings to that effect, in a letter which I wrote to Mr. Irving on the day after I saw the play; and I should be sincerely obliged to him, under the existing circumstances, if he would publish THE WHOLE of that letter.

RECITATIONS.

SHEFFIELD, 16*th February*, 1880.

MY DEAR SIR:[1] I am most happy to assure you, in reply to your interesting letter of the 12th, that I heard your daughters' recitations in London last autumn, with quite unmixed pleasure and the sincerest admiration—nor merely that, but with grave change in my opinions of the general value of recitations as a means of popular instruction. Usually, I like better to hear beautiful poetry read quietly than recited with action. But I felt, in hearing Shelley's "Cloud" recited (I think it was by Miss Josephine) that I also was "one of the people," and understood the poem better than ever before, though I am by way of knowing something about clouds, too. I also know the "Jackdaw of Rheims" pretty nearly by heart;

[1] This letter was addressed to Mr. R. T. Webling, by whom it was afterwards printed as a testimonial of the interest and success of his daughters' recitations. It was reprinted in the Daily News (Feb. 18, 1880).

but I would gladly come to London straightway, had I the time, to hear Miss Peggy speak it again. And—in fine—I have not seen any public entertainment—for many a long year—at once so sweet, so innocent, and so helpful, as that which your children can give to all the gentle and simple in mind and heart.—Believe me, my dear Sir, faithfully, and with all felicitation, yours,

J. Ruskin.

APPENDIX.

[From the "Testimonials" of W. C. Bennett, LL.D. 1871; p. 22.]

LETTER TO W. C. BENNETT, LL.D.[1]

HERNE HILL, DULWICH, *December 28th*, 1852.

DEAR MR. BENNETT: I hope this line will arrive in time to wish you and yours a happy New Year, and to assure you of the great pleasure I had in receiving your poems from you, and of the continual pleasure I shall have in possessing them. I deferred writing to you in order that I might tell you how I liked those which were new to me, but Christmas, and certain little "pattering pairs of restless shoes" which have somehow or another got into the house in his train, have hitherto prevented me from settling myself for a quiet read. In fact, I am terribly afraid of being quite turned upside down when I do, so as to lose my own identity, for you have already *nearly* made me like babies, and I see an ode further on to another antipathy of mine—the only one I have in the kingdom of flowers—the chrysanthemum. However, I am sure you will be well pleased if you can cure me of all *dislikes*. I should write to you now more cheerfully, but that I am anxious for

[1] The present letter is from the Testimonials of W. C. Bennett, LL.D., Candidate for the Clerkship of the London School Board. The pamphlet consists of "letters from distinguished men of the time," and includes some from Mr. Carlyle, Mr. Tennyson, Mr. Browning, Charles Dickens, and others. Mr. Ruskin's letter was originally addressed to Mr. Bennett in thanks for a copy of his Poems (Chapman and Hall, 1850). The poems specially alluded to are "Toddling May" (from which Mr. Ruskin quotes), "Baby May," and another, "To the Chrysanthemum." The book is dedicated to Miss Mitford.

the person who, of all I know, has fewest dislikes and warmest likings—for Miss Mitford. I trust she is better, and that she may be spared for many years to come. I don't know if England has such another warm heart.

I hope I may have the pleasure of seeing you here in case your occasions should at any time bring you to London, and

I remain, with much respect, most truly yours,

J. RUSKIN.

[From the "Memoir of Thomas Guthrie, D.D." Vol. ii. pp. 321–2 (1875).]

LETTER TO DR. GUTHRIE.[1]

Saturday, 26th, 1853.

I FOUND a little difficulty in writing the words on the first page, wondering whether you would think the "affectionate" misused or insincere. But I made up my mind at last to write what I felt; believing that you must be accustomed to people's getting very seriously and truly attached to you, almost at first sight, and therefore would believe me.

You asked me, the other evening, some kind questions about my father. He was an Edinburgh boy, and in answer to some account by me of the pleasure I had had in hearing you, and the privilege of knowing you, as also of your exertions in the cause of the Edinburgh poor, he desires to send you the enclosed, to be applied by you in such manner as you may think fittest for the good of his native city. I have added slightly to my father's trust. I wish I could have done so more largely, but my profession of fault-finding with the world in general is not a lucrative one.

Always respectfully and affectionately yours,

J. RUSKIN.

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[1] This letter accompanied the gift of a copy of The Stones of Venice, sent to Dr. Guthrie by Mr. Ruskin, who, while residing in Edinburgh during the winter of 1853, "was to be found each Sunday afternoon in St. John's Free Church."

[From "The Times," March 29, 1859.]

THE SALE OF MR. WINDUS' PICTURES.

To the Editor of "The Times."

SIR: Will you oblige me by correcting an error in your account given this morning of the sale of Mr. Windus' pictures on Saturday, in which the purchase of Mr. Millais's picture "Pot Pourri" is attributed to me? I neither purchased Mr. Millais's picture, nor any other picture at that sale.

I have the honor to be, Sir, your obedient servant,

J. RUSKIN.

DENMARK HILL, *March* 28.

[From "The Pall Mall Gazette," March 1, 1867.]

AT THE PLAY.

To the Editor of "The Pall Mall Gazette."

SIR: I am writing a series of private letters on matters of political economy to a working man in Newcastle, without objecting to his printing them, but writing just as I should if they were for his eye only. I necessarily take copies of them for reference, and the one I sent him last Monday seems to me not unlikely to interest some of your readers who care about modern drama. So I send you the copy of it to use if you like.[2]

Truly yours,

J. RUSKIN.

DENMARK HILL, *Feb.* 28, 1867.

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[1] The collection of pictures belonging to Mr. B. G. Windus was sold by Messrs. Christie and Manson on March 26, 1859.

[2] The enclosed letter is Letter V. of Time and Tide.

[From "The Daily Telegraph," January 22, 1868.]

AN OBJECT OF CHARITY.[1]

To the Editor of "The Daily Telegraph."

SIR: Except in "Gil Blas," I never read of anything Astræan on the earth so perfect as the story in your fourth article to-day.

I send you a check for the Chancellor. If 40, in legal terms, means 400, you must explain the further requirements to your impulsive public.

I am, Sir, your faithful servant,

J. RUSKIN.

DENMARK HILL, S., *Jan.* 21, 1868.

EXCUSES FROM CORRESPONDENCE.

DENMARK HILL, S.,
2d February, 1868.

I am about to enter on some work which cannot be well done or even approximately well, unless without interruption, and it would be desirable for me, were it in my power, to leave home for some time, and carry out my undertaking in seclusion. But as my materials are partly in London, I cannot do this;

[1] The Daily Telegraph of January 21, 1868, contained a leading article upon the following facts. It appeared that a girl, named Matilda Griggs, had been nearly murdered by her seducer, who, after stabbing her in no less than thirteen different places, had then left her for dead. She had, however, still strength enough to crawl into a field close by, and there swooned. The assistance that she met with in this plight was of a rare kind. Two calves came up to her, and disposing themselves on either side of her bleeding body, thus kept her warm and partly sheltered from cold and rain. Temporarily preserved, the girl eventually recovered, and entered into recognizances, under the sum of forty pounds, to prosecute her murderous lover. But "she loved much," and, failing to prosecute, forfeited her recognizances, and was imprisoned by the Chancellor of the Exchequer for her debt. "Pity this poor debtor," wrote the Daily Telegraph, and in the next day's issue appeared the above letter, probably not intended for the publication accorded to it.

so that my only alternative is to ask you to think of me as if actually absent from England, and not to be displeased though I must decline all correspondence. And I pray you to trust my assurance that, whatever reasons I may have for so uncouth behavior, none of them are inconsistent with the respect and regard in which I remain,

Faithfully yours,[1]

[From "The Liverpool Weekly Albion," November 9, 1872.]

LETTER TO THE AUTHOR OF A REVIEW.[2]

CORPUS CHRISTI COLLEGE, OXFORD,
Wednesday, 30th Oct.

[MY DEAR] SIR: I was on the point of writing to the Editor of *The Albion* to ask the name of the author of that article. Of course, one likes praise [and I'm so glad of it that I can take a great many kinds], but I never got any [that] I liked so much before, because, as far as I [can] remember nobody ever noticed

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[1] The above letter, printed as a circular, was at one time used by Mr. Ruskin in reply to part of his large correspondence. Some few copies had the date printed on them as above. The following is a similar but more recent excuse, printed at the end of the last "list of works" issued (March, 1880) by Mr. Ruskin's publisher:

Mr. Ruskin has always hitherto found his correspondents under the impression that, when he is able for average literary work, he can also answer any quantity of letters. He most respectfully and sorrowfully must pray them to observe, that it is precisely when he is in most active general occupation that he can answer fewest private letters; and this year he proposes to answer——none, except those on St. George's business. There will be enough news of him, for any who care to get them, in the occasional numbers of "Fors."

[2] The review was the first of three articles entitled "The Discipline of Art and the Votary of Science," published in the Liverpool Weekly Albion of November 9, 16, and 23, 1873. The first of them had also appeared previously in the Liverpool Daily Albion, and was reprinted with the present letter in the weekly issue of Nov. 9. The aim of the articles was partly to show how the question "What is Art?" involved a second and deeper inquiry, "What is Man?" The words bracketed here were omitted in the Albion, but occur in the original letter, for access to which I have to thank the writer of the articles.

or allowed for the *range* of work I've had to do, and which really has been dreadfully costly and painful to me, compelling me to leave things just at the point when one's work on them has become secure and delightsome, to attack them on another rough side. It is a most painful manner of life, and I never got any credit for it before. But the more I see, the more I feel the necessity of seeing all round, however hastily.

I am entirely grateful for the review and the understanding of me; and I needed some help just now—for I'm at once single-handed and dead—or worse—hearted, and as nearly beaten as I've been in my life.

Always therefore I shall be, for the encouragement at a heavy time,

Very gratefully yours,
(Signed) J. Ruskin.

[From "The Globe," October 29, 1874.]

AN OXFORD PROTEST.[1]

The Slade Professor has tried for five years to please everybody in Oxford by lecturing at any time that might be conveniently subordinate to other dates of study in the University. He finds he has pleased nobody, and must for the future at least make his hour known and consistent. He cannot alter it this term because people sometimes come from a distance and have settled their plans by the hours announced in the *Gazette*, but for many reasons he thinks it right to change the place, and will hereafter lecture in the theatre of the museum.[2] On Friday the 30th he will not begin till half-past twelve to allow settling time. Afterwards, all his lectures will be at twelve in this and future terms. He feels that if he cannot be granted so much as twelve hours of serious audience in working time

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[1] Mr. Ruskin had recently changed the hour of his lectures from two to twelve, and the latter hour clashing with other lectures, some complaints had been made. This "protest" was then issued on the morning of October 29 and reprinted in the Globe of the same day.

[2] Instead of in the drawing schools at the Taylor Gallery.

during the whole Oxford year, he need not in future prepare public lectures at which his pupils need not much regret their non-attendance.

[From "The Standard," August 28, 1877. Reprinted in the "Notes and Correspondence" to "Fors Clavigera," Letter lxxxi., September, 1877, vol. iv., p. 104.]

MR. RUSKIN AND MR. LOWE.

To the Editor of "The Standard."

SIR: My attention has been directed to an article in your columns of the 22d inst., referring to a supposed correspondence between Mr. Lowe and me.[1] Permit me to state that the letter in question is not Mr. Lowe's. The general value of your article as a review of my work and methods of writing will, I trust, rather be enhanced than diminished by the correction, due to Mr. Lowe, of this original error; and the more, that your critic in the course of his review expresses his not unjustifiable conviction that no correspondence between Mr. Lowe and me is possible on any intellectual subject whatever.

I am, Sir, your obedient servant,

JOHN RUSKIN.

BRANTWOOD, CONISTON, LANCASHIRE,
August 24.

[From the List of "Mr. Shepherd's Publications" printed at the end of his "The Bibliography of Dickens," 1880.]

THE BIBLIOGRAPHY OF RUSKIN.

I.

BRANTWOOD, CONISTON,
Sept. 30, 1878.

DEAR SIR: So far from being distasteful to me, your perfect reckoning up of me not only flatters my vanity extremely, but

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[1] The article in question stated that a number of Fors Clavigera had been sent to Mr. Lowe, and commented on by him in a letter to Mr. Ruskin. The last words of the article, alluded to above, were as follows: "The world will be made no wiser by any controversy between Mr. Ruskin and Mr. Lowe, for it would be impossible to reduce their figures or facts to a common denominator."

will be in the highest degree useful to myself. But you know so much more about me than I now remember about anything, that I can't find a single thing to correct or add—glancing through at least.

I will not say that you have wasted your time ; but I may at least regret the quantity of trouble the book must have given you, and am, therefore, somewhat ashamedly, but very gratefully yours,

J. RUSKIN.

R. H. SHEPHERD, ESQ.

II.

BRANTWOOD, CONISTON,
Oct. 23, 1878.

DEAR MR. SHEPHERD: I am very deeply grateful to you, as I am in all duty bound, for this very curious record of myself. It will be of extreme value to me in filling up what gaps I can in this patched coverlid of my life before it is draped over my coffin—if it may be.

I am especially glad to have note of the letters to newspapers, but *most* chiefly to have the good news of so earnest and patient a friend. Ever gratefully yours,

J. RUSKIN.

[From the "First Annual Report" of the "Ruskin Society" (of the Rose), Manchester, 1880.]

THE SOCIETY OF THE ROSE.[1]

"No, indeed, I don't want to discourage the plan you have so kindly and earnestly formed, but I could not easily or decorously promote it myself, could I? But I fully proposed to write you a letter to be read at the first meeting, guarding you especially against an 'ism,' or a possibility of giving occasion for one; and I am exceedingly glad to receive your present letter. Mine was not written because it gave me trouble to think of it, and I can't take trouble now. But

[1] This letter was written early in 1879 to the Secretary *pro tem.* of the Ruskin Society of Manchester, in reply to a request for Mr. Ruskin's views upon the formation of such a Society.

without thinking, I can at once assure you that the taking of the name of St. George *would* give me endless trouble, and cause all manner of mistakes, and perhaps even legal difficulties. We must not have that, please.

"But I think you might with grace and truth take the name of the Society of the Rose—meaning the English wild rose—and that the object of the society would be to promote such English learning and life as can abide where it grows. You see it is the heraldic sign on my books, so that you might still keep pretty close to me.

"Supposing this were thought too far-fetched or sentimental by the promoters of the society, I think the 'More' Society would be a good name, following out the teaching of the Utopia as it is taken up in 'Fors.' I can't write more to-day, but I dare say something else may come into my head, and I'll write again, or you can send me more names for choice."

[From "The Autographic Mirror," December 23 and 30, 1865.]

LETTER TO W. H. HARRISON.[1]

DEAR MR. HARRISON: The plate I send is unluckily merely outlined in its principal griffin (it is just being finished), but it may render your six nights' work a little more amusing. I don't want it back.

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[1] A facsimile of this letter, from a collection of autographs in the possession of Mr. T. F. Dillon Croker, appeared in the above-named issue of the Autographic Mirror. The subject of the letter will be made clearer by the following passages from Mr. Ruskin's reminiscence of Mr. William Henry Harrison, published in the University Magazine of April, 1878, under the title of "My First Editor."—"1*st February*, 1878. In seven days more I shall be fifty-nine; which (practically) is all the same as sixty; but being asked by the wife of my dear old friend, W. H. Harrison, to say a few words of our old relations together, I find myself, in spite of all these years, a boy again—partly in the mere thought of, and renewed sympathy with, the cheerful heart of my old literary master, and partly in instinctive terror lest, wherever he is in celestial circles, he should catch me writing bad grammar, or putting wrong stops, and should set the table turning, or the like. . . . Not a book of

Never mind putting "see to quotations," as I always do. And, in the second revise, don't look to all my alterations to tick them off, but merely read straight through the new proof to see if any mistake strikes you. This will be more useful to me than the other.

Most truly yours, with a thousand thanks,

J. RUSKIN.

[From the "Journal of Dramatic Reform," November, 1880.]

DRAMATIC REFORM.[1]

I.

MY DEAR SIR: Yes, I began writing something—a year ago, is it?—on your subject, but have lost it, and am now utterly too busy to touch so difficult and so important a subject. I shall come on it, some day, necessarily.

Meantime, the one thing I have to say mainly is that the idea of making money by a theatre, and making it educational at the same time, is *utterly* to be got out of people's heads. You don't make money out of a Ship of the Line, nor should you out of a Church, nor should you out of a College, nor should you out of a Theatre.

Pay your Ship's officers, your Church officers, your College tutors, and your Stage tutors, what will honorably maintain them. Let there be no starring on the Stage boards, more than on the deck, but the *Broadside* well delivered.

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mine, for good thirty years, but went, every word of it, under his careful eyes twice over—often also the last revises left to his tender mercy altogether on condition he wouldn't bother me any more."—The book to which the letter refers may be the Stones of Venice, and the plate sent the third (Noble and Ignoble Grotesque), in the last volume of that work; and if this be so, the letter was probably written from Herne Hill about 1852-3.

[1] This and the following letter were both addressed to Mr. John Stuart Bogg, the Secretary of the Dramatic Reform Association of Manchester. The first was a reply to a request that Mr. Ruskin would, in accordance with an old promise, write something on the subject of the Drama for the Society's journal; and the second was added by its author on hearing that it was the wish of the Society to publish the first.

And let the English Gentleman consider with himself what *he* has got to teach the people : perhaps then, he may tell the English Actor what *he* has to teach them.

Ever faithfully yours,

(Signed) J. RUSKIN.

BRANTWOOD, *July 30th*, 1880.

II.

MY DEAR SIR: I am heartily glad you think my letter may be of some use. I wish it had contained the tenth part of what I wanted to say.

May I ask you at least to add this note to it, to tell how indignant I was, a few days ago, to see the drop-*scene* (!) of the *Folies* at Paris composed of huge advertisements! The ghastly want of sense of beauty, and endurance of loathsomeness gaining hourly on the people!

They were playing the *Fille du Tambour Major* superbly, for the most part; they gave the introductory convent scene without the least caricature, the Abbess being played by a very beautiful and gracefully-mannered actress, and the whole thing would have been delightful had the mere decorations of the theatre been clean and pretty. To think that all the strength of the world combining in Paris to amuse itself can't have clean box-curtains! or a pretty landscape sketch for a drop scene!—but sits in squalor and dismalness, with bills stuck all over its *rideau!*

I saw *Le Chalet* here last night, in many respects well played and sung, and it is a quite charming little opera in its story, only it requires an actress of extreme refinement for the main part, and everybody last night sang too loud. There is no music of any high quality in it, but the piece is one which, played with such delicacy as almost any clever, *wellbred* girl could put into the heroine's part (if the audiences would look for acting more than voice), *ought* to be extremely delightful to simple persons.

On the other hand, I heard *William Tell* entirely massacred at the great opera-house at Paris. My belief is they scarcely sang a piece of pure Rossini all night, but had fitted in mod-

ern skimble-skamble tunes, and quite unspeakably clumsy and common *ballet*. I scarcely came away in better humor from the mouthed tediousness of *Gerin* at the *Français*, but they took pains with it, and I suppose it pleased a certain class of audience. The *William Tell* could please nobody at heart.

The libretto of *Jean de Neville* is very beautiful, and ought to have new music written for it. Anything so helplessly tuneless as its present music I never heard, except mosquitoes and cicadas.

Ever faithfully yours,

(Signed) J. RUSKIN.

AMIENS, *October* 12*th*, 1880.

[From the "Glasgow Herald," October 7, 1880.]

THE LORD RECTORSHIP OF GLASGOW UNIVERSITY.[1]

I.

BRANTWOOD, CONISTON, LANCASHIRE, 10*th June*, 1880.

MY DEAR SIR: I am greatly flattered by your letter, but there are two reasons why I can't stand—the first, that though I believe myself the stanchest Conservative in the British Islands, I hold some opinions, and must soon clearly utter them, concerning both lands and rents, which I fear the Conservative Club would be very far from sanctioning, and think Mr. Bright himself had been their safer choice. The second, that I am not in the least disposed myself to stand in any contest where it is possible that Mr. Bright might beat me.

Are there really no Scottish gentlemen of birth and learning from whom you could choose a Rector worthier than Mr. Bright? and better able than any Southron to rectify what

[1] Of these letters it should be noted that the first was written to the President of the Conservative Club upon his requesting Mr. Ruskin to stand for the Lord Rectorship; the second in answer to a hope that Mr. Ruskin would reconsider the decision he had expressed in his reply; and the third upon the receipt of a letter explaining what the duties of the office were. The fourth letter refers to one which dealt with some reflections made by the Liberal Club upon the former conduct of their opponents.

might be oblique, or hold straight what wasn't yet so, in a Scottish University?

Might I ask the favor of the transmission of a copy of this letter to the Independent Club? It will save me the difficulty of repetition in other terms. And believe me, my dear sir, always the club's and your faithful servant,

(Signed) J. RUSKIN.

MATT. P. FRASER, ESQ.

II.

13*th June*, 1880.

MY DEAR SIR: I am too tired at this moment (I mean this day or two back) to be able to think. My health may break down any day, and I cannot bear a sense of having to do anything. If you would take me on condition of my residence for a little while with you, and giving a little address to the students after I had seen something of them, I think I could come, but I won't stand ceremonies nor make long speeches, and you really should try to get somebody else.

Ever respectfully yours,

(Signed) J. RUSKIN.

MATT. P. FRASER, ESQ.

III.

24*th June*, 1880.

MY DEAR SIR: I am grieved at my own vacillation, and fear it is more vanity than sense of duty in which I leave this matter of nomination to your own pleasure. But I had rather err in vanity than in heartlessness, and so will do my best for you if you want me.

Ever respectfully yours,

(Signed) J. RUSKIN.

IV.

ROUEN, 28*th September*, 1880.

SIR: I am obliged by your letter, but can absolutely pay no regard to anything said or done by Mr. Bright's Committee beyond requesting my own committees to print for their inspection—or their use—in any way they like, every word of every letter I have written to my supporters, or non-support-

ers, or any other person in Glasgow, so far as such letters may be recoverable. Faithfully yours,

(Signed) J. RUSKIN.

MATT. P. FRASER, ESQ.

V.[1]

[From "The Glasgow Herald," October 12, 1880.]

BRANTWOOD, CONISTON, LANCASHIRE.

MY DEAR SIR: What in the devil's name have *you* to do with either Mr. D'Israeli or Mr. Gladstone? You are students at the University, and have no more business with politics than you have with rat-catching.

Had you ever read ten words of mine [with understanding] you would have known that I care no more [either] for Mr. D'Israeli or Mr. Gladstone than for two old bagpipes with the drones going by steam, but that I hate all Liberalism as I do Beelzebub, and that, with Carlyle, I stand, we two alone now in England, for God and the Queen.

Ever faithfully yours,

J. RUSKIN.

ALEX. MITCHELL, ESQ., Avoch, by Inverness.

P.S.—You had better, however, ask the Conservatives for a copy of my *entire* letters to them.

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[1] Upon the terms of this letter, which was written in answer to a question whether Mr. Ruskin sympathized with Lord Beaconsfield or with Mr. Gladstone, the reader is referred to the Epilogue. The bracketed words were omitted in the Glasgow Herald.

EPILOGUE.

I FIND my immitigable Editor insists on epilogue as well as prologue from his submissive Author; which would have fretted me a little, since the last letter of the series appears to me a very pretty and comprehensive sum of the matters in the book, had not the day on which, as Fors would have it, I am to write its last line, brought to my mind something of importance which I forgot to say in the preface; nor will it perhaps be right to leave wholly without explanation the short closing letter to which I have just referred.

It should be observed that it was written to the President of the *Liberal* party of the Glasgow students, in answer to the question which I felt to be wholly irrelevant to the business in hand, and which could not have been answered in anything like official terms with anything short of a forenoon's work. I gave the answer, therefore, in my own terms, not in the least petulant, but chosen to convey as much information as I could in the smallest compass; and carrying it accurately faceted and polished on the angles.

For instance, I never, under any conditions of provocation or haste, would have said that I hated Liberalism as I did *Mammon*, or Belial, or Moloch. I chose the milder fiend of Ekron, as the true exponent and patron of Liberty, the God of Flies; and if my Editor, in final kindness, can refer the reader to the comparison of the House-fly and House-dog, in (he, and not I, must say where) [1] the letter will have received all the illustration which I am minded to give it. I was only surprised that after its publication, of course never intended,

[1] See The Queen of the Air, §§ 148–152 (1874 Ed.).

though never forbidden by me, it passed with so little challenge, and was, on the whole, understood as it was meant.

The more important matter I have to note in closing, is the security given to the conclusions arrived at in many subjects treated of in these letters, in consequence of the breadth of the basis on which the reasoning is founded. The multiplicity of subject, and opposite directions of investigation, which have so often been alleged against me, as if sources of weakness, are in reality, as the multiplied buttresses of the apse of Amiens, as secure in allied result as they are opposed in direction. Whatever (for instance) I have urged in economy has ten times the force when it is remembered to have been pleaded for by a man loving the splendor, and advising the luxury of ages which overlaid their towers with gold, and their walls with ivory. No man, oftener than I, has had cast in his teeth the favorite adage of the insolent and the feeble—"ne sutor." But it has always been forgotten by the speakers that, although the proverb might on some occasions be wisely spoken by an artist to a cobbler, it could never be wisely spoken by a cobbler to an artist.

J. RUSKIN.

AMIENS, *St. Crispin's Day*, 1880.

NOTE.—*In the second and third columns the bracketed words and figures are more or*

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A Landslip near Giagnano	Naples
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" "	Schaffhausen
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less certainly conjectured; whilst those unbracketed give the actual dating of the letter.

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] 1858	List of Turner's Drawings, Boston, 1874.	i.100*n.*
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